

Title	REPORT ON THE MOLLUSCA CHIEFLY COLLECTED BY THE S. S. SOYO-MARU OF THE IMPERIAL FISHERIES EXPERIMENTAL STATION ON THE CONTINENTAL SHELF BORDERING JAPAN DURING THE YEARS 1922-1930 -PART 3. LAMELLIBRANCHIA (1)-
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REPORT ON THE MOLLUSCA CHIEFLY COLLECTED BY THE  
S. S. SOYÔ-MARU OF THE IMPERIAL FISHERIES  
EXPERIMENTAL STATION ON THE CONTINENTAL SHELF  
BORDERING JAPAN DURING THE YEARS 1922-1930

PART 3. LAMELLIBRANCHIA (1)<sup>1)2)</sup>

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*With Plates XI-XIII*

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In this third report, the writer deals with 130 species of the Prionodesmid and Anomalodesmid groups of Lamellibranchiate molluscs. Of these ten species and one subspecies are new to science as follow:

- |  |                                     |
|--|-------------------------------------|
| <i>Acila minutoides</i> KURODA et HABE sp. nov.      | <i>Ennucula teramachii</i> sp. nov. |
| <i>Neilonella soyoae</i> sp. nov.                    | <i>Nuculana aikawai</i> sp. nov.    |
| <i>Nuculana acinacea</i> sp. nov.                    | <i>Nuculana soyoae</i> sp. nov.     |
| <i>Nuculana yokoyamai arai</i> subsp. nov.           | <i>Saccella soyoae</i> sp. nov.     |
| <i>Bentharca rubrotincta</i> KURODA et HABE sp. nov. | <i>Striarca soyoae</i> sp. nov.     |
| <i>Amygdalum soyoae</i> sp. nov.                     |                                     |

Before going further, I express my particular thanks to Dr. Tokubei KURODA for his kind suggestions throughout this study.

Class PELECYPODA (LAMELLIBRANCHIA)

Subclass PRIONODESMACEA

Order LIPODONTA

Superfamily Solemyacea

Family Solemyidae

1. *Solemya (Acharax) japonica* (DUNKER)

(Pl. XII, fig. 1)

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1) Contributions from the Seto Marine Biological Laboratory, No. 309.

2) Contributions from the Amakusa Marine Biological Laboratory (Kyushu University), No. 114.

1882 *Solemya japonica* DUNKER, Index Moll. Mar. Jap., pp. 220, 261, pl. 14, fig. 3.

1927 *Solemya yamakawai* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, (2) 1, p. 435, pl. 50, figs. 10, 11.

*Localities*: St. 76 (off Shimokita Peninsula, 128 m); St. 483 (off Yamaguchi Pref., 130 m); and St. 523 (off Tottori Pref., 181 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: This small species is common on the fine sandy bottom in shallow water and differs from *Solemya (Petrasma) pusilla* GOULD in having the external ligament.

#### Order PROTOBRANCHIA

#### Superfamily Nuculacea

#### Family Nuculidae

### 2. *Nucula paulula* A. ADAMS

(Pl. XI, figs. 7, 8)

1856 *Nucula paulula* A. ADAMS, Proc. Zool. Soc. London, 24, p. 52.

*Locality*: St. 484 (off Yamaguchi Pref., 93 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: This small nuculid species is very common on the fine sandy bottom in shallow water.

### 3. *Nucula (Lamellinucula) tokyoensis* YOKOYAMA

(Pl. XI, fig. 1)

1920 *Nucula tokyoensis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39 (6), p. 181, pl. 19, figs. 10, 11.

*Localities and Distribution*: Sts. 439 and 452 (off Gotô Islands, 155 m and 154 m) and Sts. 459 and 468 (off Tsushima, 115 m and 112 m).

### 4. *Nucula (Lamellinucula) gemmulata* HABE

1953 *Nucula (Lamellinucula) gemmulata* HABE, Illust. Cat. Jap. Shells, 25, p. 215.

*Localities*: Sts. 252 and 255 (Sagami Bay, 289 m and 263 m).

*Distribution*: Tosa Bay, Shikoku to Sagami Bay, Honshu.

*Remarks*: This species closely resembles the preceding species in the general features, but may be easily distinguished from the latter in having the more prominent umbo and the smooth escutcheon.

5. *Acila divaricata* (HINDS)

(Pl. XII, fig. 7)

1943 *Nucula divaricata* HINDS, Proc. Zool. Soc. London, 11, p. 97.1850 *Nucula mirabilis* A. ADAMS et REEVE, Zool. Samarang. Moll., p. 75, pl. 21, fig. 8.1936 *Acila divaricata vigilia* SCHENCK, Geol. Soc. Amer., Spec. Papers 4, p. 101, pl. 17, figs. 1-6.

*Localities*: St. 63 (off Iwate Pref., 331 m); Sts. 479 and 481 (off Tsushima, 148 m and 143 m); Sts. 490, 495, 496 and 499 (off Shimane Pref., 155 m, 146 m, 206 m and 207 m); Sts. 518, 522 and 523 (off Tottori Pref., 229 m, 192 m and 181 m); St. 541 (off Yosa Peninsula, Kyoto Pref., 150 m), St. 613 (off Sado Island, 250 m) and St. 634 (off Akita Pref., 84 m).

*Distribution*: Japan Sea, China Sea, northern Honshu (South to off Choshi, Chiba Pref.).

*Remarks*: *A. d. vigilia* is a northern form of this species with various kinds of intermediate form between them.

6. *Acila schencki* KURODA (MS)1936 *Acila divaricata submirabilis* SCHENCK, Geol. Soc. Amer., Spec. Papers, 4, p. 88, pl. 11, figs. 9-11; pl. 14, figs. 1, 5, 8-11; pl. 18, figs. 8, 9, 13-15 (non MAKIYAMA).1954 *Acila schencki* KIRA, Illust. Jap. Shells, pl. 41, fig. 5 (name only).

*Localities*: St. 248 (Sagami Bay, 170 m) and St. 274 (Senoumi, Suruga Bay, 51 m).

*Distribution*: Off the Pacific coast of Japan.

7. *Acila (Truncacila) insignis* GOULD

(Pl. XII, fig. 8)

1861 *Acila insignis* GOULD, Proc. Boston Soc. N. H., 8, p. 36.

*Localities*: St. 452 (off Goto Islands, 154 m); Sts. 462, 468, 479 and 481 (off Tsushima, 117 m, 112 m, 148 m and 143 m); St. 483 (off Yamaguchi Pref., 130 m); St. 494 (off Shimane Pref., 110 m); St. 506 (off Oki Islands, 176 m) and St. 523 (off Tottori Pref., 191 m).

*Distribution*: China Sea, Japan Sea, northern Honshu and Hokkaido.

*Remarks*: This species is common on the fine sandy bottom in shallow water in the northern Japan.

8. *Acila (Truncacila) minutoides* KURODA et HABE sp. nov.

*Localities*: Sts. 252, 255 and 257 (Sagami Bay, 289 m, 263 m and 137 m); St. 259 (Suruga Bay, 118 m) and St. 371 (Enshû-nada, 84 m).

*Distribution*: Tosa Bay, Shikoku to Sagami Bay, Honshu.

*Remarks*: This is a small nuculid species the shell of which has the divaricate sculpture as in the preceding species, but the sculpture in this species is more densely set than in that species. The detailed description may be given in another paper in the near future.

Length 5.1 mm, height 4.2 mm, breadth 2.5 mm (type specimen : conjoined valves)

Length 5.0 mm, height 4.1 mm, breadth 2.5 mm (paratype specimen : conjoined valves)

Length 5.7 mm, height 5.0 mm, breadth 1.6 mm (the largest left valve)

*Type locality*: St. 259 (Suruga Bay).

### 9. *Ennucula cyrenoides* (KURODA)

(Pl. XI, fig. 2)

1929 *Nucula cyrenoides* KURODA, *Venus*, 1 (3), App. p. 7, figs. 8, 9.

*Localities*: St. 11 (off Chôshi, Chiba Pref., 375 m); Sts. 211 and 212 (off Tanabe, Wakayama Pref., 190 m and 181 m); St. 249 (Sagami Bay, 229 m); St. 365 (off Shima Peninsula, 93 m); St. 371 (off Enshu-nada, 84 m); St. 437 (off Gotô Islands, 307 m); Sts. 468 and 473 (off Tsushima, 112 m and 143 m); Sts. 483 and 488 (off Yamaguchi Pref., 130 m and 406 m); Sts. 493 and 494 (off Shimane Pref., 124 m and 110 m); Sts. 503 and 512 (off Oki Islands, 146 m and 141 m); St. 523 (off Tottori Pref., 181 m) and St. 599 (off Sado Island, 181 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: This is a solid nuculid species which differs from *E. niponica* (SMITH) in having the strongly oblique chondrophore towards the anterior tooth plate.

### 10. *Ennucula teramachii* sp. nov.

*Locality*: St. 392 (Kii Channel between Shikoku and Honshu, 61 m).

*Distribution*: Tosa Bay, Shikoku and off Wakayama Pref., Honshu.

Shell small, obliquely and triangularly ovate, very inflated, smooth and polished, yellowish green in colour; umbo opisthogyre and prominent; escutcheon distinctly defined, bordering by the keels and lunule also marked by the obtusely angled ridges; chondrophore rather small, projected inwards; tooth plate broad and stout; on the anterior portion are about fifteen and on the shorter posterior about ten teeth; ventral margin smooth; the interior surface shining pearly.

Length 5.0 mm, height 4.2 mm, breadth 2.9 mm (type specimen collected by Mr. Akibumi TERAMACHI)

Length 5.0 mm, height 4.2 mm, breadth 2.8 mm (paratype specimen)

Length 4.5 mm, height 3.5 mm (specimen from St. 392)

*Type locality*: Tosa Bay, Shikoku.

*Remarks*: This is the smallest ennuculid species in Japan. This characteristic

inflated shell which has a ridge on each side of the umbo, distinguishes this species from the young forms of the other Japanese species.

### Family Malletiidae

#### 11. *Malletia* (*Neilo*) *carinifera* HABE

1951 *Malletia* (*Neilo*) *carinifera* HABE, Gen. Jap. Shells, 1, p. 22, figs. 16, 17.

*Locality*: St. 249 (Sagami Bay, 229 m).

*Distribution*: Tosa Bay to Sagami Bay.

#### 12. *Neilonella coix* HABE

(Pl. XI, fig. 22)

1951 *Neilonella coix* HABE, Gen. Jap. Shells, 1, p. 23, figs. 12, 13.

*Localities*: St. 255 (Sagami Bay, 263 m); St. 302 (off Toizaki, Miyazaki Pref., 582 m) and St. 392 (Kii Channel, 61 m).

*Distribution*: Kyushu to Sagami Bay, Honshu.

#### 13. *Neilonella soyoae* sp. nov.

*Locality*: St. 414 (off Yaku-shima, south of Kyushu, 514 m).

*Remarks*: This new species closely resembles the preceding species, but the surface of shell in the former is sculptured with the densely set concentric grooves throughout. Three imperfect valves had been collected from this station. One of them measures 7.2 mm in length by 4.7 mm in height.

#### 14. *Tindaria soyoae* HABE

(Pl. XI, figs. 9, 13)

1953 *Tindaria soyoae* HABE, Jap. Jour. Malac. (Venus), 17, pp. 130, 136, textfigs. 1, 2.

*Locality*: St. 304 (off Toizaki, Miyazaki Pref., 241 m).

*Remarks*: This is a first species of this genus from Japan and only known from the type locality.

### Family Nuculanidae

#### 15. *Sarepta speciosa* A. ADAMS

(Pl. XI, figs. 5, 6)

1860 *Sarepta speciosa* A. ADAMS, Ann. Mag. N. H., (3) 5, p. 303.

*Localities*: St. 12 (off Chôshi, Chiba Pref., 325 m); Sts. 220, 221 and 341 (Tosa Bay, 234 m, 209 m and 126 m); St. 240 (Sagami Bay, 192 m); St. 259 (Suruga Bay, 188 m); St. 300 (off Toizaki, Miyazaki Pref., 110 m); St. 417 (off Satsuma Peninsula, 192 m); Sts. 432, 433 and 452 (off Gotô Islands, 148 m, 168 m and 154 m); Sts. 459 and 468 (off Tsushima, 115 m and 112 m); St. 483 (off Yamaguchi Pref., 130 m); Sts. 494 and 520 (off Shimane Pref., 110 m and 75 m); Sts. 503 and 504 (off Oki Islands, 146 m and 106 m); St. 546 (Wakasa Bay, 101 m); St. 568 (off Noto Peninsula, 90 m) and St. 625 (off Oga Peninsula, Akita Pref., 51 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### 16. *Nuculana pernula* (MÜLLER)

(Pl. XII, figs. 2, 3)

1779 *Nucula pernula* MÜLLER, Besch. Ges. Naturf. Fr. Berlin, 4, p. 55.

*Localities*: St. 90 (off Iwate Pref., 152 m); Sts. 475 and 479 (off Tsushima, 192 m and 148 m); St. 506 (off Oki Island, 176 m) and Sts. 595 and 599 (off Sado Island, 145 m and 181 m).

*Distribution*: Northern Honshu, Japan Sea, Hokkaido, Saghalien and Arctic Sea.

### 17. *Nuculana (Thestylea) aikawai* sp. nov.

(Pl. XI, fig. 3)

*Locality*: St. 499 (off Iki Islands, 207 m).

*Remarks*: This species is characteristic in having the very flat shell with well-marked concentric ribs all over the surface. The description is given below.

Shell small, strongly compressed, elongate-ovate, the umbo small, a little elevated; the dorsal slopes, anterior and posterior, nearly straight; anterior dorsal margin shorter than the posterior; anterior side sharply rounded and the posterior end truncated; a slightly curved ridge runs from the umbo to the posterodorsal corner in each valve, forming a smooth, lanceolate escutcheon and another obtuse ridge runs from the umbo to the posteroventral corner; the area between two ridges slightly concave; surface sculptured with lamellate concentric ribs throughout, hinge teeth bear 9 in anterior part and 15 in the posterior of the small oblique condrophore; a siphonal fold present on the inside of rostration.

Length 9.1 mm, height 5.0 mm, breadth 1.4 mm (type specimen; right valve)

### 18. *Nuculana (Thestylea) scalata* (PRASHAD)

(Pl. XI, figs. 34, 35)

1932 *Nucula (Thestylea) scalata* PRASHAD, Siboga Exped. Lamellibr., p. 22, pl. 1, figs. 30, 31.

*Locality*: St. 216 (off Kannoura, Kôchi Pref., 274 m).

*Distribution*: East Indies and this station.

*Remarks*: This is a first record of this species in Japan.

19. *Nuculana* (*Thestylea*) *acinacea* sp. nov.

1954 *Nuculana* (*Thestylea*?) *acinacea* KIRA, Illust. Jap. Shells, pl. 41, fig. 9 (name only).

*Localities*: Sts. 252 and 255 (Sagami Bay, 289 m and 263 m); 392 (Kii Channel, 61 m) and St. 452 (off Gotô Islands, 154 m).

*Remarks*: This new species is very close to *Nuculana elaborata* PRASHAD in the general appearance, but the former is not sculptured distinctly all over the shell surface. The following is the description of this new species:

Shell moderate in size, very unequilateral, strongly elongate-ovate, rather inflated, acutely rounded anteriorly and elongated posteriorly; truncated at the posterior end, covered with yellowish green periostracum; the dorsal margin of rostration slightly curved upwardly; the anterior dorsal margin short, a half of the posterior dorsal; two ridges radiate from the umbo posteriorly one to postero-dorsal corner and another to the postero-ventral; surface sculptured with weak growth lines which sometimes grow to the riblets in the anterior area, except the narrow area between two ridges, on which the strong undulations bear; small hinge teeth bear about 18 in anterior series and about 22 in the posterior; a distinct fold on the interior of rostration.

Length 13.8 mm, height 6.5 mm, breadth 4.3 mm (type specimen; conjoined valves, collected by Mr. Akibumi TERAMACHI)

Length 10.8 mm, height 5.3 mm, breadth 3.2 mm (paratype specimen)

Length 10.2 mm, height 4.8 mm, breadth 3.0 mm (paratype specimen)

*Type locality*: Tosa Bay (Shikoku).

20. *Nuculana* (*Thestylea*) *soyoae* sp. nov.

*Localities*: St. 295 (off Tanegashima, 154 m) and St. 392 (Kii Channel, 61 m).

*Remarks*: This new species differs from all known Japanese nuculanid species in having the smooth area between two ridges radiated from the umbo to the posterior corners.

Shell small, triangularly ovate, rounded anteriorly and truncated posteriorly, tumid and solid, white, covered with yellowish green periostracum; anterior dorsal margin slightly convex and the posterior dorsal gently concave; a ridge runs from the umbo to the postero-dorsal angle, forming a flat escutcheon and another ridge also runs to the postero-ventral angle from the umbo; the area between two ridges concave and smooth; surface sculptured with the coarse concentric grooves, interior white and polished; posterior hinge longer than the anterior; hinge teeth bear sixteen on each side of the triangular chondrophore, a fold on the inside of rostration.



Length 10.6 mm, height 6.1 mm, breadth 4.2 mm (type specimen, conjoined valves)

*Type locality*: St. 392.

## 21. *Nuculana (Thestylea) yokoyamai* (KURODA)

(Pl. XI, fig. 4; Pl. XII, fig. 5)

1920 *Leda ramsayi* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, **39** (6), p. 176 pl. 19, fig. 3 (non SMITH).

1934 *Nuculana yokoyamai* KURODA, Venus, **4**, p. 204.

*Localities*: Sts. 11, 12 (off Chôshi, Chiba Pref., 375 m and 325 m); St. 212 (off Tanabe, Wakayama Pref., 181 m); St. 255 (Sagami Bay, 263 m); St. 259 and 276 (Suruga Bay, 188 m and 77 m); St. 304 (off Toizaki, Miyazaki Pref., 241 m); St. 324 (Bungo Channel, 106 m); St. 363 (off Mie Pref., 439 m); St. 371 (Enshû-nada, 84 m); Sts. 451 and 452 (off Gotô Islands, 187 m and 154 m); Sts. 459, 468, 475 and 481 (off Tsushima, 115 m, 112 m, 192 m and 143 m); Sts. 483, 484 and 488 (off Yamaguchi Pref., 130 m, 93 m and 408 m); Sts. 506 and 508 (off Oki Islands, 176 m and 439 m); St. 523 (off Tottori Pref., 181 m); and St. 541 (off Yosa Peninsula, Kyoto Pref.).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: Specimens from Sts. 324, 371, 468 and 484 are separable from the real *N. yokoyamai* in having the decidedly coarser concentric ribs on the surface. Therefore the writer gives a new subspecific term, *arai* (fig. 4) for this form, type specimen of which measures 7.5 m in length, 3.9 m in height and 2.3 m in breadth and has only 15 concentric ribs instead of 20 in the typical form in the specimen of the same length.

## 22. *Nuculana (Robaia*, subgen. nov.) *robai* (KURODA)

1929 *Leda robai* KURODA, Venus, **1**, App. p. 9, textfigs. 6, 7.

*Localities*: St. 490 (off Yamaguchi Pref., 155 m); St. 577 (off Noto Peninsula, 311 m); St. 609 (off Sado Island, 669 m) and St. 639 (off Aomori Pref., 196 m).

*Distribution*: Japan Sea.

*Remarks*: This species differs from other Japanese nuculanid species in having the smooth and polished shell which presents no siphonal ridge on the inside of rostration. Therefore a new subgeneric name, *Robaia*, is proposed for this species. The genus *Yoldia* somewhat resembles this new subgenus in the shell appearance, but the latter has a small, oblique chondrophore, indicating to be a group of the Genus *Nuculana*.

## 23. *Saccella gordonis* (YOKOYAMA)

1920 *Leda gordonis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, **39**, p. 177, pl. 19, figs. 4, 5.

*Localities*: St. 371 (off Enshû-nada, 84 m); St. 432 (off Gotô Islands, 148 m); Sts. 459 and 468 (off Tsushima, 115 m and 112 m); St. 483 (off Yamaguchi Pref., 130 m); and St. 494 (off Shimane Pref., 110 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Sagami Bay).

*Remarks*: This species has weaker growth lines on the surface of shell than the following, which growth lines are decidedly marked on the surface throughout.

#### 24. *Saccella sematensis* (SUZUKI et ISHIZUKA)

1943 *Nuculana confusa sematensis* SUZUKI et ISHIZUKA, Jap. Jour. Malac. (Venus), 13, pp. 54, 61, pl. 2, figs. 1-10, 12.

*Localities*: Sts. 211 and 212 (off Tanabe, Wakayama Pref., 190 m and 181 m); St. 221 (off Tosa Bay, 209 m); St. 298 (off Toizaki, Miyazaki Pref., 117 m); St. 314 (off Hyuga-nada, 91 m); St. 371 (Enshû-nada, 84 m); St. 432 (off Gotô Islands, 148 m); St. 470 (Genkai-nada, 73 m); Sts. 483, 484, 488 (off Yamaguchi Pref., 130 m, 93 m, 406 m) and St. 523 (off Tottori Pref., 181 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: This species may be easily distinguished from *S. confusa* which lives on the fine sandy bottom in shallow waters in the southern Japan in having the more elongate shell.

#### 25. *Saccella soyoae* sp. nov.

(Pl. XI, fig. 18)

1953 *Costanuculana husamaru* HABE, Gen. Jap. Shells, 4, p. 281, figs. 732, 740 (non NOMURA).

*Locality*: St. 249 (Sagami Bay, 229 m).

*Remarks*: This species was erroneously referred to *Costanuculana husamaru* NOMURA by the close resemblance in shape, but the former has the more flat and solid shell with distantly and regularly undulated grooves than in the latter. Therefore the writer proposes a new name for this interesting species, giving the description in the following lines:

Shell solid, compressed, ovate, rounded anteriorly and pointed posteriorly covered with the greenish periostracum and sculptured with the distantly placed concentric undulation diminished away on the posterior third area; anterior dorsal margin slightly convex and the posterior almost straight; a gently curved obtused keel runs to the posterior end to the umbo, forming the flat dorsal area; lunule very narrow and defined; hinge teeth about 18 on the anterior series and 14 on the posterior, providing a small chondrophore between them; mantle line hardly sinuated at the posterior part; interior porcellaneous.

Length 9.0 mm, height 6.0 mm, breadth 2.0 mm (type specimen: left valve)

Length 10.0 mm, height 7.0 mm, breadth 2.3 mm (paratype specimen: right valve)

collected from Moeshima in Kagoshima Bay as a Pleistocene fossil).

## 26. *Saccella kirai* (HABE)

1953 *Neilonella kirai* HABE, Jap. Jour. Malac. (Venas), 17, p. 137.

*Localities*: St. 220 (off Tosa Bay, 234 m); St. 304 (off Toizaki, Miyazaki Pref., 241 m); St. 452 (off Gotô Islands, 154 m) and St. 481 (off Tsushima, 143 m).

*Remarks*: *Saccella sibogai* (PRASHAD) and *S. approximans* (PRASHAD) both from the East Indies closely relate to this species. The first species has the shell more strongly rostrated posteriorly and the second has the more elongate shell than this species proportionally.

## 27. *Portlandia* (*Portlandella*) *toyamaensis* (KURODA)

1929 *Yoldia toyamaensis* KURODA, Venus, 1, App. p. 11, textfigs. 14, 15.

*Locality*: St. 302 (off Toizaki, Miyazaki Pref., 582 m).

*Distribution*: Toyama Bay and this station.

## 28. *Portlandia* (*Yoldiella*) *pygmaea* (MÜNSTER)

1837 *Nucula pygmaea* MÜNSTER, Goldfuss Petref. Germ. 2, p. 157, pl. 125, fig. 17.

1929 *Yoldia* (*Yoldiella*) *kibi* KURODA, Venus, 1, App. p. 12, textfigs. 20, 21.

*Locality*: St. 481 (off Tsushima, 143 m).

*Distribution*: Japan Sea; Okhotsk Sea and Arctic Sea.

*Remarks*: This is a minute species, measuring only 2.5 mm in length in the fully grown specimen and widely distributes in the northern seas.

## 29. *Yoldia similis* KURODA et HABE

1929 *Yoldia naganumana* KURODA, Venus, 1, App. p. 10, textfig. 19 (non YOKOYAMA).

1952 *Yoldia similis* KURODA et HABE, Check List Bibliogr. Recent Mar. Moll. Japan, p. 35.

*Localities*: St. 151 (off Kinkazan, Miyagi Pref., 123 m); Sts. 479 and 481 (off Tsushima, 148 m and 143 m); St. 495 (off Shimane Pref., 146 m); St. 595 (off Sado Island, 145 m); St. 522 (off Akita Pref., 218 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: This species was referred to a fossil species *Y. naganumana* by the close resemblance in shape, but stands near *Cnesterium johanni* rather than that species in having the distinct concentric grooves and some weak oblique striae on the surface.

30. *Cnesterium johanni* (DALL)

(Pl. XII, fig. 4)

1925 *Yoldia johanni* DALL, Proc. U. S. Nat. Mus., 66 (17), p. 32, pl. 29, fig. 7.

*Locality*: St. 475 (off Tsushima, 192 m).

*Distribution*: Japan Sea, Okhotsk Sea and northern Japan (south to Kinkazan).

31. *Cnesterium notabile* (YOKOYAMA)

1922 *Yoldia notabilis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 196, pl. 17, fig. 10.

*Locality*: St. 438 (off Yamaguchi Pref., 130 m).

*Distribution*: Japan Sea, Okhotsk Sea and northern Honshu (south to Bôso Peninsula).

Order TAXODONTA

Superfamily Arcacea

Family Arcidae

32. *Arca miyatensis* OYAMA

(Pl. XII, fig. 6)

1920 *Arca kobeltiana* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39, p. 163, pl. 17, fig. 4 (non PILSBRY).

1951 *Arca miyatensis* OYAMA, Minerarology and Geology, 4, p. 155.

*Localities*: St. 78 (off Shiriyazaki, Aomori Pref., 143 m); Sts. 468, 479 and 481 (off Tsushima, 112 m, 148 m and 143 m); St. 483 (off Yamaguchi Pref., 130 m); St. 494 and 498 (off Shimane Pref., 110 m and 139 m) and St. 580 (Toyama Bay, 135 m).

*Distribution*: Japan Sea and Hokkaido.

33. *Barbatia (Ustularca) stearnsi* (PILSBRY)

1895 *Arca stearnsi* PILSBRY, Cat. Mar. Moll. Japan, p. 148, pl. 3, figs. 8-10.

*Localities*: St. 4 (off Bôso Peninsula, 287 m); St. 330 (off Ashizurizaki, 102 m); and St. 365 (off Ago Bay, Mie Pref., 93 m).

*Distribution*: Formosa to Honshu (north to Iwate Pref. and Toyama Bay).

34. *Acar congenita* (SMITH)

1885 *Arca congenita* SMITH, Rep. Challenger, Lamellibr., p. 264, pl. 17, figs. 6, 6a.

*Remarks*: St. 240 (Sagami Bay, 192 m); St. 259 (Suruga Bay, 188 m); Sts. 279

and 376 (Enshū-nada, 155 m and 64 m); St. 301 (off Toizaki, Miyazaki Pref., 181 m); St. 327 (off Uwajima, Ehime Pref., 216 m); Sts. 365 and 376 (off Mie Pref., 93 m and 64 m); St. 481 (off Tsushima, 143 m).

*Distribution*: Philippines; Kyushu, Shikoku and Honshu (north to Sagami Bay).

*Remarks*: This species closely allies to *Acar plicata* which is very common on rocks in shallow waters in general features. But in the former the shell is compressed and has a keel from the umbo to the postero-ventral corner forming a sharp angle and the truncated posterior margin.

### 35. *Bentharca xenophorica* (KURODA)

(Pl. XI, fig. 19)

1930 *Bathyarca xenophorica* KURODA, Venus, 2, App. p. 33, textfigs. 38, 39.

*Localities*: Sts. 210, 211, 212 and 352 (off Wakayama Pref., 165 m, 190 m, 181 m and 154 m); Sts. 220 and 222 (Tosa Bay, 234 m and 210 m); Sts. 259, 276, 286 and 288 (Suruga Bay, 188 m, 77 m, 123 m, 77 m); St. 295 (off Tanegashima, 154 m); Sts. 300, 301 and 304 (off Toizaki, Miyazaki Pref., 110 m, 181 m and 240 m); St. 327 (off Uwajima, Ehime Pref., 216 m); St. 330 (off Ashizurizaki, 102 m); Sts. 412 and 417 (off Satsuma Peninsula, 219 m and 192 m); St. 414 (off Yakushima, 514 m); St. 429 (off Amakusa, 223 m); Sts. 444, 451 and 452 (off Gotō Islands, 194 m, 187 m and 154 m); Sts. 468 and 481 (off Tsushima, 112 m and 143 m) and St. 483 (off Yamaguchi Pref., 130 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Suruga Bay).

### 36. *Bentharca rubrotincta* KURODA et HABE sp. nov.

*Locality*: St. 322 (Bungo Channel between Kyushu and Shikoku, 110 m).

*Remarks*: This new species may be easily distinguished from the preceding species in having the more flat shell with well developed sculpture and coloured in reddish brown and also with the more numerous small teeth on the hinge plate.

Shell small, rather thin, oblique, triangular in shape, hardly contracted at the anterior third, inequivalved, the smaller right valves is embraced by the left as in other species of this genus, compressed, reddish brown in colour except several narrow white radial bands; dorsal margin straight, forming the wing at each end; ligamental area present quite narrowly between the umbones which are slightly elevated beyond the dorsal line at the about anterior fourth; outer surface marked many radial ribs which are crossed by the strong concentric ridges forming nodules on them; ventral margin crenulated within and bears the weak sinuation at the anterior third, indicating the byssal gape; hinge plate broad but narrowed in the middle; the anterior hinge area bears 5 and the posterior 15 in number of teeth which are small and oblique.

Length 8.2 mm, height 5.0 mm, breadth 1.9 mm (type specimen: right valve)

Length 9.5 mm, height 6.0 mm, breadth 2.2 mm (type specimen: left valve)

### 37. *Samacar pacifica* (NOMURA et ZINBO)

(Pl. XI, fgs. 14, 15)

1934 *Pseudogrammatodon pacifica* NOMURA et ZINBO, Sci. Rep. Tohoku Imp. Univ. (2) **16** (2), pl. 53, pl. 5, fgs. 6a, b and 7a, b.

*Localities*: St. 221 (off Tosa Bay, 209 m); St. 240 (Sagami Bay, 192 m); St. 259 and 288 (Suruga Bay, 188 m and 77 m); Sts. 326 and 327 (off Uwajima, Ehime Pref., 393 m and 216 m); St. 384 (the entrance of Ise Bay, 21–38 m); St. 431 (off Amakusa, 152 m); St. 445 (off Gotô Islands, 73 m); St. 568 (off Noto Peninsula, 90 m); and St. 646 (off Tsugaru Peninsula, 123 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### 38. *Pseudogrammatodon dalli* (SMITH)

(Pl. XII, fig. 13)

1885 *Arca (Macrodon) dalli* SMITH, Rep. Challenger, Lamellibr., p. 269, pl. 17, fgs. 10–10b.

1920 *Parallelodon obliquatus* YOKOYAMA, Jour. Coll. Sci. Imp. Uni. Tokyo, **39** (6), p. 170, pl. 18, fgs. 9–11.

*Localities*: Sts. 240 and 255 (Sagami Bay, 192 m and 263 m); Sts. 440, 441, 442, 466, 468, 469, and 474 (off Gotô Islands, 152 m, 373 m, 340 m, 110 m, 112 m, 91 m and 219 m); St. 498 (off Shimane Pref., 139 m); St. 512 (off Oki Islands, 141 m); Sts. 572 and 575 (off Noto Peninsula, 132 and 123 m); St. 627 (off Oga Peninsula, Akita Pref., 148 m); St. 646 (off Tsugaru Peninsula, 123 m); and St. 658 (off Shimokita Peninsula, Aomori Pref., 113 m).

*Distribution*: China Sea; Japan Sea and Honshu (south to Sagami Bay and Inland sea of Japan).

### 39. *Bathyarca kyurokusimana* NOMURA et HATAI

(Pl. XI, fgs. 23, 24)

1940 *Bathyarca (Microcucullaea) kyurokusimana* NOMURA et HATAI, Saitô Hô-on Kai Res. Bull., **19**, p. 75, pl. 4, fgs. 1a, b.

*Localities*: Sts. 11 and 12 (off Chôshi, Chiba Pref., 375 and 325 m); St. 205 (off Kumano-nada, 224 m); St. 220 (Tosa Bay, 234 m); St. 255 (Sagami Bay, 263 m); Sts. 259, 276 and 286 (Suruga Bay, 188 m, 77 m and 123 m); St. 295 (off Tanegashima, 154 m); St. 304 (off Toizaki, Miyazaki Pref., 241 m); St. 331 (off Ashizurizaki, 344 m); St. 363 (off Mie Pref., 439 m); St. 392 (Kii Channel, 61 m); St. 417

(off Satsuma Peninsula, 192 m); Sts. 447 and 452 (off Gotô Islands, 90 m and 154 m); Sts. 468, 469 and 481 (off Tsushima, 112 m, 91 m and 143 m); Sts. 483, 484, 486 and 488 (off Yamaguchi Pref., 130 m, 93 m, 139 m and 409 m); Sts. 491, 492, 495, 497, and 498 (off Shimane Pref., 112 m, 132 m, 146 m, 143 m and 139 m); Sts. 503 and 504 (off Oki Islands, 146 m and 106 m) and St. 580 (Toyama Bay, 135 m).

*Distribution*: Kyushu, Shikoku and Honshu.

#### 40. *Hawaiarca uwaensis* (YOKOYAMA)

(Pl. XI, fig. 10)

1928 *Arca uwaensis* YOKOYAMA, Jour. Fac. Sci. Imp. Univ. Tokyo, (2) 2 (7), p. 349, pl. 67, figs. 13, 14.

*Localities*: Sts. 11 and 12 (off Chôshi, Chiba Pref., 375 m and 325 m); St. 211 (off Wakayama Pref., 190 m); St. 222 (Tosa Bay, 210 m); Sts. 240 and 251 (Sagami Bay, 192 m and 165 m); Sts. 259 and 276 (Suruga Bay, 188 m and 77 m); Sts. 293, 294 and 295 (off Tanegashima, 203 m, 102 m and 154 m); St. 300 (off Toizaki, Miyazaki Pref., 110 m); St. 322 (Bungo Channel, 110 m); St. 327 (Uwajima, Ehime Pref., 216 m); Sts. 363, 365 and 376 (off Mie Pref., 439 m, 93 m and 64 m); St. 384 (the entrance of Ise Bay, 21–38 m); St. 414 (off Yakushima, south of Kyushu, 514 m); Sts. 432, 440, 452 (off Gotô Islands, 148 m, 152 m and 154 m); Sts. 459, 462 and 468 (off Tsushima, 115 m, 117 m and 112 m); St. 470 (Genkai-nada, 73 m); Sts. 471, 481, 483, 484 and 488 (off Yamaguchi Pref., 90 m, 143 m, 130 m, 93 m and 406 m); Sts. 494, 498, 520 and 521 (off Shimane Pref., 110 m, 139 m, 75 m and 86 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Kashima-nada and Oki Islands).

*Remarks*: *Bentharca xenophoricola* (KURODA), *Bathyarca kyurokusimana* NOMURA et HATAI and *Hawaiarca uwaensis* (YOKOYAMA) are very common arcid species on the continental shelf bordering Japan, especially in the southern region.

#### 41. *Anadara (Diluvarca) tricenica* (NYST)

1848 *Arca tricenica* NYST, Mem. Acad. Roy. Belg., 22, p. 74.

1882 *Scapharca philippiana* DUNKER, Index Moll. Mar. Japon., p. 235.

*Localities*: St. 300 (off Toizaki, Miyazaki Pref., 110 m); St. 365 (off Ago Bay, Mie Pref., 93 m); St. 470 (Genkai-nada, 73 m); St. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m); Sts. 494 and 520 (off Shimane Pref., 110 m and 75 m).

*Distribution*: East Indies; China; Formosa to Honshu (north to Sagami Bay and Shimane Peninsula).

#### 42. *Striarca (Galactella) symmetrica* (REEVE)

1844 *Arca symmetrica* REEVE, Conch. Icon., Arca, sp. 117.

*Locality*: St. 294 (off Tanegashima, south of Kyushu, 102 m).

*Distribution*: East Indies; Philippines; Formosa to Japan (except Hokkaido).

#### 43. *Striarca (Spinearca) interplicata* (GRABAU et KING)

(Pl. XII, fig. 15)

1920 *Arca symmetrica* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, **39** (6), p. 166, pl. 17, figs. 7, 8 (non REEVE).

1928 *Arca (Barbatia) interplicata* GRABAU et KING, Shells Peitaiho, p. 161, pl. 1, figs. 9.

1933 *Arca (Barbatia) yokoyamai* NOMURA, Sci. Rep. Tohoku Imp. Univ., (2) **16** (1), p. 41, pl. 1, figs. 3.

*Locality*: St. 300 (off Toizaki, Miyazaki Pref., 110 m).

*Distribution*: Formosa; North China; Japan (north to Sagami Bay and Toyama Bay).

#### 44. *Striarca (Spinearca) soyoae* sp. nov.

(Pl. XI, figs. 28, 29)

*Localities*: St. 211 (off Tanabe, Wakayama Pref., 190 m); St. 220 (Tosa Bay, 234 m); St. 240 (Sagami Bay, 192 m); St. 300 (off Toizaki, Miyazaki, Pref., 110 m); St. 345 (off Murotozaki, 165-199 m); St. 417 (off Satsuma Peninsula, 192 m); St. 447 (off Gotô Islands, 90 m); St. 466 (off Iki Island, 110 m); St. 468 (off Tsushima, 112 m); St. 494 (off Shimane Pref., 110 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Sagami Bay and off Shimane Pref.).

*Remarks*: St. (*Sp.*) *fausta* HABE, a fossil species from Moeshima in Kagoshima Bay and St. (*Sp.*) *alia* (DALL, BARTSCH et REHDER) from Hawaii, closely relate to this new species, but they have less numerous beaded strong radiating ribs on the surface. The description is given in the following lines:

Shell small, ovate, widened backwards, moderately inflated, white, covered with the thin yellowish periostracum; dorsal margin straight, forming the obtuse angle at each end; anterior margin curves roundly and the posterior obliquely and gently curved; the ventral margin nearly straight; umbo elevated slightly beyond the dorsal margin at the anterior third; ligamental area between umbones, narrow but distinct; outer surface marked by many radial riblets, some of which on the postero-ventral area are considerably strong; weak concentric cords cross the radial riblets giving the nodules; interior of the shell white; hinge plate moderately broad, narrowed in the middle; the anterior area bears 13-15 teeth and the posterior 15-18; the anterior, posterior and ventral margins crenulated within.

*Type locality*: Sagami Bay, Honshu.

Length 8.0 mm, height 5.3 mm, breadth 4.5 mm (type specimen collected by Mr. Ryosuke KAWAMURA)



Length 8.9 mm, height 6.2 mm, breadth 2.5 mm (paratype specimen: right valve from St. 345)

### Family Glycymeridae

#### 45. *Glycymeris rotunda* (DUNKER)

1882 *Pectunculus rotundus* DUNKER, Index Moll. Mar. Japon., p. 236, pl. 16, figs. 9, 10.

1922 *Pectunculus yamakawai* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 40, p. 190, pl. 16, figs. 4, 5.

*Localities*: St. 4 (off Bôshô Peninsula, 287 m); Sts. 11, 12 (off Chôshi, Chiba Pref., 375 and 325 m); St. 78 (off Shiriyazaki, Shimokita Peninsula); Sts. 188, 266, 276 and 291 (Suruga Bay, 214 m, 128 m, 77 m and 77 m); St. 193 (Enshû-nada, 265 m); Sts. 211 and 212 (off Wakayama Pref., 190 m and 181 m); Sts. 220, 221, 222, 224 and 340 (Tosa Bay, 234 m, 209 m, 210 m, 251 m and 481 m); St. 236 (off Tateyama, Boso Peninsula, 251 m); Sts. 240, 241, 248, 249 and 251 (Sagami Bay, 192 m, 476 m, 170 m, 229 m and 165 m); St. 298 (off Toizaki, Miyazaki Pref., 298 m); Sts. 349 and 392 (Kii Channel, 152 m and 61 m); St. 383 (off Mie Pref., 353 m); St. 429 (off Amakusa, 223 m); Sts. 439, 452, 468, 477 and 481 (off Tsushima, 155, 154, 112 m, 99 m and 143 m); St. 488 (Yamaguchi Pref., 406 m); Sts. 491 and 492 (off Shimane Pref., 112 m and 132 m); St. 506 (off Oki Islands, 176 m); St. 541 (off Yosa Peninsula, Kyoto Pref., 150 m); Sts. 599 and 611 (off Sado Island, 181 m and 143 m); Sts. 627 and 634 (off Akita Pref., 148 m and 84 m).

*Distribution*: Kyushu, Shikoku and Honshu.

#### 46. *Glycymeris yessoensis* (SOWERBY)

(Pl. XII, fig. 16)

1886 *Pectunculus yessoensis* SOWERBY, Proc. Zool. Soc. London, p. 510, pl. 28, figs. 19.

*Locality*: St. 81 (off Shimokita Peninsula, 172 m).

*Distribution*: Northern Honshu, Hokkaido, Saghalien and Korea.

#### 47. *Tucetilla pilsbryi* (YOKOYAMA)

(Pl. XI, fig. 27)

1920 *Pectunculus pilsbryi* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39, p. 170, pl. 18, fig. 8.

*Localities*: St. 78 (off Shiriyazaki, Shimokita Peninsula, 143 m); Sts. 207 and 210 (off Wakayama Pref., 229 m and 165 m); Sts. 221 and 225 (Tosa Bay, 209 m and 349 m); Sts. 240, 251 and 252 (Sagami Bay, 192 m, 165 m and 286 m); Sts. 259, 274 and 278 (Suruga Bay, 188 m, 51 m and 79 m); Sts. 289, 302 and 304 (off Toizaki, Miyazaki Pref., 117 m, 582 m and 241 m); Sts. 319 and 322 (Bungo Channel, 210 m and

110 m); Sts. 325 and 327 (off Uwajima, Ehime Pref., 210 m and 216 m); St. 345 (off Murotozaki, 165-199 m); St. 376 (Enshu-nada, 64 m); Sts. 431, 437, 439, 440, 441 and 451 (off Gotô Islands, 152 m, 307 m, 155 m, 152 m, 353 m and 187 m); Sts. 461 and 462 (off Tsushima, 120 m and 117 m); St. 466 (Iki Island, 110 m); St. 469 (Genkai-nada, 91 m); St. 521 (off Oki Islands, 86 m); St. 524 (off Tottori Pref., 88 m) and St. 568 (off Noto Peninsula, 90 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### Family Limopsidae

#### 48. *Limopsis tajimae* SOWERBY

(Pl. XII, figs. 9, 17)

1914 *Limopsis tajimae* SOWERBY, Ann. Mag. N. H., (8) 13, p. 445, pl. 18, fig. 3.

*Localities*: St. 116 (off Chôshi, Chiba Pref., 44 m); St. 205 (Kumano-nada, 224 m); Sts. 224 and 340 (Tosa Bay, 251 m and 481 m); St. 236 (off Tateyama, Bôso Peninsula, 251 m); St. 249 (Sagami Bay, 229 m); Sts. 259, 276 and 277 (Suruga Bay, 188 m, 77 m and 91 m); St. 295 (off Tanegashima, 154 m); St. 321 (Bungo Channel, 457 m); St. 326 (off Uwajima, Ehime Pref., 393 m); St. 343 (off Murotozaki, 366 m); St. 351 (off Tanabe, Wakayama Pref., 384 m); St. 356 (off Shionomisaki, 384 m); Sts. 363 and 381 (off Mie Pref., 439 m and 329 m); St. 392 (Kii Channel, 61 m); Sts. 432, 433, 437 and 441 (off Gotô Islands, 148 m, 168 m, 307 m and 363 m); Sts. 461, 473, 474, 475, 477, 478 and 479 (off Tsushima, 120 m, 143 m, 219 m, 192 m, 99 m, 101 m and 148 m); Sts. 486, 487 and 490 (off Yamaguchi Pref., 139 m, 194 m and 155 m); Sts. 492, 495, 497, 498 and 499 (off Shimane Pref., 132 m, 146 m, 143 m, 139 m and 207 m); Sts. 506 and 512 (off Oki Islands, 176 m and 141 m); Sts. 530 (off Hyogo Pref., 183 m); St. 541 (off Yosa Peninsula, Kyoto Pref., 150 m); Sts. 575 and 577 (off Noto Peninsula, 123 m and 311 m); St. 580 (Toyama Bay, 135 m); St. 591 (off Niigata Pref., 311 m); Sts. 600, 602, 603, 605 and 611 (off Sado Island, 168 m, 205 m, 210 m, 139 m and 143 m); Sts. 616, 619 and 520 (off Yamagata Pref., 106 m, 338 m and 139 m); Sts. 622 and 627 (off Akita Pref., 218 m and 148 m); St. 639 (off Aomori Pref., 196 m); Sts. 644, 645 and 646 (off Tsugaru Peninsula, 150 m, 115 m and 123 m).

*Distribution*: Kyushu, Shikoku and Honshu.

#### 49. *Limopsis crassula* HABE

(Pl. XII, figs. 10, 11)

1953 *Limopsis crassula* HABE, Illust. Cat. Jap. Shells, 25, p. 202, pl. 29, figs. 2, 3.

*Localities*: St. 600 (off Sado Island, 168 m) and St. 646 (off Tsugaru Peninsula, 123 m).

*Distribution*: Japan Sea.

50 *Limopsis (Emploconia) cumingii* A. ADAMS

(Pl. XIII, fig. 3)

1863 *Limopsis cumingii* A. ADAMS, Proc. Zool. Soc. London, p. 229 (1882).1922 *Limopsis areolata* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44, p. 194, pl. 17, figs. 6, 7.

*Localities*: St. 278 (Suruga Bay, 79 m); St. 322 (Bungo Channel, 110 m); St. 356 (off Shionomisaki, 384 m); St. 379 (Enshu-nada, 391 m); Sts. 439, 440 and 452 (off Gotô Islands, 155 m, 152 m and 154 m); St. 471 (off Yamaguchi Pref., 90 m); Sts. 476 and 477 (off Tsushima, 84 m and 99 m); and St. 491 (off Shimane Pref., 112 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Sagami Bay and off Shimane Pref.).

51. *Pectunculina oblonga* (A. ADAMS)

(Pl. XI, figs. 32, 33)

1860 *Limopsis oblonga* A. ADAMS, Ann. Mag. N. H., (3) 5, p. 412.1863 *Limopsis crenata* A. ADAMS, Proc. Zool. Soc. London, p. 230 (1862).1931 *Limopsis tumidula* THIELE, Deutsche Tiefsee Exped., 21, p. 186, pl. 1, fig. 26.

*Localities*: Sts. 11, 12, 13 (Chôshi, Chiba Pref., 375 m, 325 m and 210 m); St. 78 (off Shiriyazaki, Aomori Pref., 143 m); St. 81 (off Shimokita Peninsula, 172 m); St. 90 (off Miyako, Iwate Pref., 152 m); Sts. 193, 371, 376 and 377 (Enshû-nada, 265 m, 84 m, 64 m and 82 m); St. 205 (Kumano-nada, 224 m); St. 207 (off Shionomisaki, 229 m); St. 221 (off Tanabe, Wakayama Pref., 190 m); St. 221 (Tosa Bay, 209 m); Sts. 240, 248, 249, 251 and 252 (Sagami Bay, 192 m, 170 m, 229 m, 165 m and 289 m); Sts. 259, 275, 276, 279, 286 and 288 (Suruga Bay, 188 m, 62 m, 77 m, 155 m, 123 m and 77 m); Sts. 298 and 302 (off Toizaki, Miyazaki Pref., 117 m and 582 m); St. 309 (Hyûga-nada, 472 m); St. 322 (Bungo Channel, 110 m); St. 329 (off Uwajima, Ehime Pref., 296 m); St. 347 (off Kannoura, Kochi Pref., 126 m); St. 349 (Kii Channel, 152); St. 352 (off Tanabe, Wakayama Pref., 154 m); St. 357 (off Shionomisaki, 444 m); Sts. 362, 363, 366 and 383 (off Mie Pref., 132 m, 439 m, 494 m and 353 m); St. 384 (the entrance of Ise Bay, 21-38 m); St. 417 (off Satsuma Peninsula, 192 m); Sts. 432, 433, 437, 439, 442, 444, 448 and 452 (off Gotô Islands, 148 m, 168 m, 307 m, 155 m, 340 m, 194 m, 157 m and 154 m); Sts. 468, 469, 475, 477, 479 and 481 (off Tsushima, 112 m, 91 m, 192 m, 99 m, 148 m and 143 m); Sts. 483, 484 and 488 (off Yamaguchi Pref., 130 m, 93 m and 406 m); Sts. 492, 494 and 495 (off Shimane Pref., 132, 110 m, and 146 m); St. 506 (off Oki Islands, 176 m); St. 529 (off Hyogo Pref., 256 m); St. 541 (off Yosa Peninsula, 150 m); St. 577 (off Noto Peninsula, 311 m); St. 599 (off Sado Island, 181 m); Sts. 622 and 637 (off Akita Pref., 218 m and 145 m); and St. 639 (off Aomori Pref., 196 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: This species is characteristic by the ventral margin crenulated within

and this is one of the commonest species on the continental shelf around Japan together with *Glycymeris rotundata* (DUNKER), and *Limopsis tajimae* SOMERBY, *Cryptopecten vesiculosus* (DUNKER) and *Notostrea musashiana* (YOKOYAMA).

## 52. *Oblimopa japonica* (A. ADAMS)

(Pl. XI, fig. 30)

1863 *Limopsis japonica* A. ADAMS, Proc. Zool. Soc. London, p. 229 (1862).

1953 *Oblimopa soyoae* HABE, Illust. Jap. Jour. Malac. (Venus), 17, p. 131, figs. 7, 8.

*Localities*: Sts. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m).

*Distribution*: Off the coasts of Kyushu and San-in, Honshu.

*Remarks*: The writer is recently inclined to assume that *Oblimopa soyoae* may be an individual variety of this species after the critical consideration on many materials collected from Amakusa, though he described it as a new species.

## 53. *Oblimopa forskalli* (A. ADAMS)

1863 *Limopsis forskalii* A. ADAMS, Proc. Zool. Soc. London, p. 230 (1862).

1882 *Limopsis woodwardi* DUNKER, Index. Moll. Mar. Japon, p. 237, pl. 16, figs. 5, 6 (non A. ADAMS).

1930 *Limopsis multistriata* KURODA, Venus, 1, App. p. 17, fig. 26 (non BRUGUIÈRE).

*Localities*: St. 4 (off Bôshô Peninsula, 287 m); Sts. 211 and 352 (off Wakayama Pref., 190 m and 154 m); St. 270 (Enshu-nada, 91 m); St. 298 (off Toizaki, Miyazaki Pref., 117 m); St. 322 (Bungo Channel, 110 m); St. 340 (Tosa Bay, 481 m); St. 363 (off Mie Pref., 439 m); St. 428 (off Amakusa, 119 m); St. 462 (off Tsushima, 117 m); St. 470 (Genkai-nada, 73 m); Sts. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m); St. 519 (off Tottori Pref., 81 m); St. 520 (off Shimane Pref., 75 m) and St. 528 (off Hyôgo Pref., 326 m).

*Distribution*: Formosa to Honshu (north to Bôshô Peninsula and off Noto Peninsula).

## 54. *Aspalima (Nipponolimopsis) decussata* (A. ADAMS)

(Pl. XI, fig. 11)

1862 *Cyrella decussata* A. ADAMS, Ann. Mag. N. H., (3), 9, p. 295.

1922 *Limopsis nipponica* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44, p. 195, pl. 17, figs. 16, 17.

1930 *Limopsis s-kinoshitai* KURODA, Venus, 1, App. p. 18, figs. 24, 25.

1931 *Limopsis hilgendorfi* THIELE, Deutsche Tiefsee Exped., 21, p. 184, pl. 1, figs. 21, 21a.

*Localities*: Sts. 78 and 658 (off Shiriyazaki, Aomori Pref. 143 m and 113 m); St. 207 (off Shionomisaki, 229 m); Sts. 210, 211, 212 and 352 (off Wakayama Pref.,

165 m, 190 m, 181 m and 153 m); St. 220 (Tosa Bay, 234 m); St. 240 (Sagami Bay, 192 m); St. 321 (Bungo Channel, 457 m); St. 384 (the entrance of Ise Bay, 21-38 m); St. 441 (off Gotô Islands, 373 m); St. 459 (off Tsushima 115 m); Sts. 595 (off Sado Island, 145 m); and St. 646 (off Tsugaru Peninsula, 113 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### Family Nucinellidae

#### 55. *Nucinella (Huxleyia) sulcata* (A. ADAMS)

(Pl. XI, figs. 16, 17)

1860 *Huxleyia sulcata* A. ADAMS, Ann. Mag. N. H., (3) 5, p. 303.

*Localities*: St. 483 (off Yamaguchi Pref., 130 m); St. 491 (off Shimane Pref., 112 m); and St. 580 (Toyoma Bay, 135 m).

*Distribution*: Tosa Bay, (Shikoku) and the southern region of Japan Sea.

*Remarks*: The generic name *Huxleyia* was replaced by *Cyrilla* as a substitute name by A. ADAMS in 1860, but the former does not invalidate by *Huxleya* DYSTER 1858 in Bryozoa, so that this name is in use.

### Order DYSODONTA

### Superfamily Mytilacea

### Family Mytilidae

#### 56. *Crenella yokoyamai* NOMURA

(Pl. XIII, fig. 2)

1922 *Crenella divaricata* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 175, pl. 15, figs. 10, 11.

1932 *Crenella yokoyamai* NOMURA, Sci. Rep. Tohoku, Imp. Univ., (2) 15 (2), p. 74.

*Localities*: St. 475 (off Tsushima, 192 m) and St. 491 (off Shimane Pref., 112 m).

*Distribution*: Japan Sea and Hokkaido (Volcano Bay).

#### 57. *Solamen spectabilis* (A. ADAMS)

1862 *Crenella spectabilis* A. ADAMS, Ann. Mag. Nat. Hist., (3) 9, p. 228.

1907 *Crenella diaphana* DALL, Smiths. Misc. Coll., 50, p. 171.

*Localities*: St. 47 (off Kamaishi, Iwate Pref., 355 m); St. 484 (off Yamaguchi Pref., 93 m) and St. 646 (off Tsugaru Peninsula, 123 m).

*Distribution*: Japan Sea and Honshu (south to Mie Pref.).

58. *Modiolus difficilis* KURODA et HABE

1920 *Modiola modiolus* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, **39** (6), p. 145, pl. 11, fig. 21. (non LINNÉ).

1950 *VolSELLA difficilis* KURODA et HABE, Illstr. Cat. Jap. Shells, **4**, p. 30.

*Localities*: Sts. 76 and 78 (off Shimokita Peninsula, Aomori Pref. 128 m and 143 m).

*Distribution*: Northern Hohshu (south to Tokyo Bay), Hokkaido, Saghalien and Kuriles.

59. *Modiolus margaritaceus* (NOMURA et HATAI)

1940 *VolSELLA margaritacea* NOMURA et HATAI, Saitô Hô-on Kai Mus. Res. Bull. **19**, p. 77, pl. 4, figs. 2, 3.

*Localities*: St. 81 (off Shimokita Peninsula, 172 m); St. 259 (Suruga Bay, 188 m); Sts. 301 and 304 (off Toizaki, Miyazaki Pref., 181 m and 241 m); St. 321 (Bungo Channel, 457 m); St. 330 (off Ashizurizaki, 102 m); St. 383 (off Mie Pref., 353 m); St. 431 (off Nagasaki, 152 m); St. 452 (off Gotô Islands, 154 m); Sts. 475, 479 and 481 (off Tsushima, 192 m, 148 m and 143 m); St. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m); Sts. 491, 495, 498 and 521 (off Shimane Pref., 112 m, 146 m, 139 m and 86 m); St. 541 (off Yosa Peninsula, Kyoto Pref., 150 m); Sts. 595 and 599 (off Sado Island, 145 m and 181 m); St. 622 (off Akita Pref., 218 m); St. 646 (off Tsugaru Peninsula, 123 m) and St. 652 (Tsugaru Channel, 110 m).

*Distribution*: Kyushu, Shikoku and Honshu.

*Remarks*: A closely allied species, *Modiolus comptus* (SOWERBY) which ranges in Ariake Bay, Seto-naikai (the inland sea of Japan) and Ago Bay, differs from this species in having a distinctly elongate shell.

60. *Modiolus (Fulgida) flavidus* (DUNKER)

(Pl. XI, fig. 12)

1957 *VolSELLA flavida* DUNKER, Proc. Zool. Soc. London, (1856), p. 364.

*Localities*: St. 12 (off Bosô Peninsula, 325 m); St. 376 (Enshû-nada, 64 m); Sts. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m).

*Distribution*: East Indies; Philippines; Kyushu, Shikoku and Honshu (north to Bosô Peninsula and Yamaguchi Pref.).

61. *Amygdalum soyoae* sp. nov.

*Localities*: St. 304 (off Toizaki, Miyazaki Pref., 241 m); and St. 439 (off Gotô Islands, 155 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Sagami Bay).

*Remarks*: Shell thin, fragile, translucent, glossy, elongate-ovate, widened to the posterior end, light yellow in colour, but the antero-ventral area being of a pale yellowish white and in the postero-dorsal translucent area the fulgurations of pale yellowish white bears in the fully grown specimens; anterior margin rounded and produced anteriorly beyond the slightly elevated umbo and the posterior broad and gently curved; surface smooth except the undulate dorsal area, polished and iridescent; hinge line simple, without any teeth; interior also smooth and polished.

Length 11.5 mm., height 6.1 mm., breadth 2.1 mm (type specimen: right valve)

Length 12.0 mm., height 6.5 mm., breadth 2.2 mm (paratype specimen: right valve)

Length 10.4 mm., height 6.0 mm., breadth 3.4 mm (paratype specimen: conjoined valves from St. 304)

*Type locality*: St. 439.

This species builds a nest of mud particles and fine byssus threads.

## 62. *Septifer (Mytilisepta) virgatus* (WIEGMANN)

1837 *Tichogonia virgata* WIEGMANN, Archiv f. Naturgesch., 3 (1), p. 49.

*Localities*: St. 297 (off Toizaki Pref., 516 m) and St. 327 (off Uwajima, Ehime Pref., 216 m).

*Distribution*: This intertidal species widely ranges in the Pacific Ocean. The northern limit of distribution of this species is Yoichi, Hokkaido in Japan.

## Family Pinnidae

## 63. *Atrina (Servatrina) teramachii* HABE

1953 *Atrina (Servatrina) teramachii* HABE, Illust. Cat. Jap. Shells, 24, p. 192, pl. 24, fig. 1, pl. 25, fig. 5.

*Localities*: St. 259 (Suruga Bay, 188 m); St. 354 (off Wakayama Pref., 558 m); St. 440 (off Gotô Islands, 152 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Sagami Bay and of Yamaguchi Pref.).

## Superfamily Dimyacea

## Family Dimyidae

## 64. *Dimya lima* BARTSCH

(Pl. XI, fig. 21)

1913 *Dimya lima* BARTSCH, Proc. U. S. Nat. Mus., 45, p. 306, pl. 27, 28, figs. 5, 6.

1951 *Dimya* sp. HABE, Gen. Jap. Shells, 1, p. 68, fig. 130, 131.

*Localities*: St. 11 (off Chôshi, Chiba Pref., 375 m); St. 301 (off Toizaki, Miyazaki Pref., 181 m); Sts. 439, 440 and 477 (off Gotô Islands, 155 m and 152 m and 99 m).

*Distribution*: Philippines, Kyushu, Shikoku and Honshu (north to off Chôshi).

### Superfamily Pectinacea

#### Family Plicatulidae

##### 65. *Plicatula muricata* SOWERBY

(Pl. XI, fig. 25)

1873 *Plicatula muricata* SOWERBY, Conch. Icon., sp. 9.

*Localities*: St. 251 (Sagami Bay, 165 m); Sts. 275, 285 and 286 (Suruga Bay, 62 m, 71 m and 123 m); Sts. 294 and 296 (off Tanegashima, 102 m and 219 m); Sts. 298 and 300 (off Toizaki, Miyazaki Pref., 117 m and 110 m); St. 319 (Bungo-nada, 216 m); and St. 332 (off Ashizurizaki, 658 m).

*Distribution*: East Indies; Ryukyu, Kyushu, Shikoku and Honshu (north to Sagami Bay).

#### Family Pectinidae

##### 66. *Chlamys lemniscata* (SOWERBY)

1853 *Pecten lemniscata* REEVE, Conch. Icon., sp. 170 and index.

*Localities*: St. 4 (Bôsô Peninsula, 287 m); St. 301 (off Toizaki, Miyazaki Pref. 181 m); St. 327 (off Uwajima Ehime Pref., 216 m); Sts. 440 and 452 (off Gotô Islands, 152 m and 154 m); St. 488 (off Yamaguchi Pref., 406 m) and St. 602 (off Sado Island, 205 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Bôsô Peninsula and off Sado).

##### 67. *Chlamys (Swiftopecten) swifti* (BERNARDI)

(Pl. XII, fig. 18)

1858 *Pecten swifti* BERNARDI, Jour. de Conchyl., 7, p. 90, pls. 1, 2, fig. 1.

1920 *Pecten tigerrima* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39 (6), p. 155, pl. 15, 14, figs. 5, 6.

*Localities*: Sts. 76 and 78 (off Shimokita Peninsula 128 m and 143 m).

*Distribution*: Northern Honshu, Hokkaido, Kuriles and Alaska.

##### 68. *Chlamys (Mimachlamys) jousseaumei* BAVAY

1904 *Chlamys jousseaumei* BAVAY, Jour. de Conchyl., 52, p. 203, pl. 6, figs. 9, 10.



*Localities*: St. 11 (off Chôshi, Chiba Pref., 375 m); St. 90 (off Iwate Pref., 152); Sts. 220, 221 and 222 (Tosa Bay, 234 m, 209 m and 210 m); Sts. 259, 276, 279, 286 and 288 (Suruga Bay, 188 m, 77 m, 155 m, 123 m and 77 m); St. 296 (off Tanegashima, 219 m); St. 309 (Hyûga-nada, 472 m); St. 362 (off Mie Pref. 132 m); St. 379 (Enshû-nada, 391 m); St. 417 (off Satsuma Peninsula, 192 m); St. 429 and 431 (off Amakusa, 223 m and 152 m); Sts. 432, 437, 438, 439, 440, 441, 444, 451, 452 (off Gotô Islands, 148 m, 309 m, 219 m, 155 m, 152 m, 353 m, 194 m, 187 m and 154 m); St. 466 (off Iki Island, 110 m); Sts. 475 and 481 (off Tsushima, 192 m and 143 m); Sts. 483 and 486 (off Yamaguchi Pref., 130 m and 139 m); Sts. 494, 495, 495, 498 and 520 (off Shimane Pref., 110 m, 146 m, 139 m and 75 m); Sts. 503, 504 and 512 (off Oki Islands, 146 m, 106 m, 141 m); St. 546 (Wakasa Bay, 101 m).

*Distribution*: Kyushu, Shikoku and Honshu.

#### 69. *Chlamys squamata* (GMELIN)

1791 *Ostrea squamata* GMELIN, Syst. Nat., ed. 13, 3329.

*Distribution*: Formosa to Honshu (north to Bôsô Peninsula and Wakasa Bay).

*Localities*: St. 300 (off Toizaki, Miyazaki Pref., 110 m); St. 345 (off Murotozaki, 165-199 m); Sts. 471, 484 and 488 (off Yamaguchi Pref., 90 m, 93 m and 406 m) and St. 520 (off Shimane Pref., 75 m).

#### 70. *Cryptopecten vesiculosus* (DUNKER)

1877 *Pecten vesiculosus* DUNKER, Malak. Bl., 24, p. 72.

*Localities*: St. 4 (off Bôsô Peninsula, 287 m); Sts. 11 and 12 (off Chôshi, Chiba Pref., 375 m and 325 m); Sts. 188, 266, 274, 275, 276, 277, 278, 279, 285, 286, 288 and 291 (Suruga Bay, 214 m, 128 m, 51 m, 62 m, 77 m, 91 m, 79 m, 115 m, 71 m, 123 m, 77 m and 77 m); St. 205 (Kumano-nada, 224 m); Sts. 210, 211, 212, 350, 352 and 396 (off Wakayama Pref., 165 m, 190 m, 181 m, 611 m, 154 m and 68 m); Sts. 220 and 221 (Tosa Bay, 234 m and 209 m); Sts. 236 and 329 (off Uwajima, Ehime Pref., 251 m and 296 m); Sts. 240, 251 and 255 (Sagami Bay, 192 m, 165 m and 263 m); Sts. 295 and 296 (off Tanegashima, 154 m and 219 m); Sts. 298, 300, 301 and 302 (off Toizaki, Miyazaki Pref., 117 m, 110 m, 181 m and 582 m); St. 309 (Hyûga-nada, 472 m); Sts. 319, 322 and 325 (Bungo Channel, 210, 110 m and 210 m); Sts. 343 and 345 (off Murotozaki, 366 m and 165-199 m); Sts. 362, 365 and 366 (off Mie Pref., 132 m, 93 m and 494 m); Sts. 376, 377, 379 (Enshu-nada, 64 m, 82 m and 391 m); St. 384 (the entrance of Ise Bay, 21-38 m); St. 417 (off Satsuma Peninsula, 192 m); St. 431 (off Amukusa, 152 m); Sts. 432, 433, 437, 438, 439, 440, 442, 444, 445, 447, 448, 449, 451 and 452 (off Gotô Islands, 148 m, 168 m, 307 m, 219 m, 155 m, 152 m, 340 m, 194 m, 73 m, 90 m, 157 m, 155 m, 187 m and 154 m); Sts. 457, 459, 461, 462, 466, 468, 469, 470, 576 and 481 (off Tsushima, 112 m, 115 m, 120 m, 117 m, 110 m, 112 m, 91 m,

73 m, 84 m and 143 m); Sts. 483, 484 and 488 (off Yamaguchi Pref., 130 m, 93 m and 406 m); Sts. 491, 492, 494, 499, 520 and 521 (off Shimane Pref., 112 m, 132 m, 110 m, 207 m, 75 m and 86 m); Sts. 503 and 504 (off Oki Islands, 146 m and 106 m); St. 519 (off Tottori Pref., 81 m); St. 546 (Wakasa Bay, 101 m); St. 554 (off Ishikawa Pref., 95 m); Sts. 568 and 575 (off Noto Peninsula, 90 m and 123 m) and St. 646 (off Tsugaru Peninsula, 123 m).

### 71. *Cryptopecten tissotii* (BERNARDI)

1858 *Pecten tissoti* BERNARDI, Jour. de Conchyl., 7, p. 91, pl. 1, fig. 2.

*Localities*: St. 284 (Suruga Bay, 71 m); St. 201 (off Toizaki, Miyazaki, Pref., 181 m); St. 362 (off Mie Pref., 132 m); Sts. 438, 439 and 440 (off Gotô Islands, 219 m, 155 m and 152 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### 72. *Decatopecten striata* (SCHUMACHER)

1817 *Pallium striatum* SCHUMACHER, Essai nouv. Syst. Test. pp. 44, 120.

1842 *Pecten plica* SOWERBY, Thes. Conch., 1, p. 65, figs. 237-239 (non LINNÉ).

*Locality*: St. 431 (off Amakusa, 152 m).

*Distribution*: Formosa to Honshu (north to Bôso Peninsula and off Noto Peninsula).

### 73. *Pecten albicans* (SCHROETER)

1802 *Pecten albicans* SCHROETER, Archiv f. Zool. 3, p. 135.

1842 *Pecten laqueatus* SOWERBY, Thes. Conch., 1, p. 46, pl. 15, fig. 101.

*Localities*: St. 4 (off Bôso Peninsula 287 m); St. 11 (off Chôshi, Chiba Pref., 375 m); Sts. 193, 371, 376 and 377 (Enshû-nada, 265 m, 84 m, 64 m and 82 m); Sts. 211, 212, 352, 395 (off Tanabe, Wakayama Pref., 190 m, 181 m, 154 m and 46 m); St. 216 (Kumano-nada, 274 m); Sts. 220 and 222 (Tosa Bay, 234 m and 210 m); Sts. 251 and 255 (Sagami Bay, 165 m and 263 m); St. 286 (Suruga Bay, 123 m); Sts. 296, 298 and 300 (off Toizaki, Miyazaki Pref., 219 m, 117 m and 110 m); St. 309 (Hyûga-nada, 472 m); St. 322 (Bungo Channel, 110 m); St. 368 (off Mie Pref., 600 m); Sts. 439, 447 and 459 (off Gotô Islands, 115 m, 90 m and 115 m); Sts. 462, 464, 468, 476 and 477 (off Tsushima, 117 m, 146 m, 112 m, 84 m and 99 m); Sts. 469 and 470 (Genkai-nada, 91 m and 73 m); Sts. 482, 483, 484, 486 and 488 (off Yamaguchi Pref., 139 m, 130 m, 93 m, 139 m and 409 m); Sts. 492, 493, 494, 520 and 521 (off St. 519 (off Shimane Pref., 132 m, 124 m, 110 m, 75 m and 86 m); St. 503 (off Oki Islands, 146 m); Tottori Pref., 81 m); St. 546 (Wakasa Bay, 101 m); St. 554 (off Ishikawa Pref., 95 m); St. 632 (off Oga Peninsula, Akita Pref., 71 m).

*Distribution*: Formosa to southern Hokkaido.

74. *Pecten sinensis* SOWERBY

1842 *Pecten sinensis* SOWERBY, Thes. Conch., 1, p. 48, pl. 16, figs. 120, 111, 134.

1877 *Pecten puncticulatus* DUNKER, Malak. Bl., 24, p. 71.

*Locality*: St. 444 (off Gotô Islands, 194 m).

*Distribution*: China; Formosa to southern Hokkaido.

75. *Patinopecten yessoensis* (JAY)

1857 *Pecten yessoensis* JAY, Rep. Shell Japan Exped, 2, p. 393, pl. 3, figs. 3, 4 and pl. 4, figs. 1, 2.

1867 *Pecten brandtii* SCHRENCK, Moll. Amurl. Nordjap. Meer., 2, p. 411.

*Localities*: Sts. 78 and 658 (off Shiryazaki, Aomori Pref., 143 m and 113 m); St. 577 (off Sado Island, 311 m) and St. 632 (off Akita Pref. 71 m).

*Distribution*: Northern Honshu, Hokkaido and Kuriles.

76. *Patinopecten tokyoensis* (TOKUNAGA)

1906 *Pecten tokyoensis* TOKUNAGA, Jour. Coll. Sci. Imp. Univ. Tokyo, 21 (2), p. 65, pl. 5, figs. 1-10.

*Localities*: St. 193 (off Hamamatsu, Enshû-nada, 265 m); Sts. 211 and 353 (off Tanabe, Wakayama Pref., 190 m and 192 m); St. 279 (Suruga Bay, 155 m); and Sts. 432, 439, 440 and 441 (off Gotô Islands, 148 m, 155 m, 152 m and 353 m).

*Remarks*: This is an extinct species, so that it may be collected from the fossil bed exposed on the sea bottom.

77. *Palliolum (Delectopecten) macrocheiricola* HABE

1938 *Pseudamusium (Palliolum) vitreum* HIRO, Annot. Zool. Japon., 17, p. 474 (non GMELIN).

1951 *Palliolum (Delectopecten) macrocheiricola* HABE, Gen. Jap. Shells, 1, p. 80.

*Locality*: St. 392 (off Kii Channel, 61 m).

*Distribution*: Tosa Bay, (Shikoku) and Honshu (off Wakayama Pref. to Sagami Bay).

78. *Ctenamusium cmadoritinctum* (KURODA)

1931 *Propeamusium cmadoritinctum* KURODA, Venus, 2, App. p. 72, fig. 81, 82; 3, : 3, App. p. 77.

*Localities*: Sts. 220 and 221 (Tosa Bay, 234 m and 209 m); St. 321 (Bungo Channel, 457 m); Sts. 447 and 452 (off Gotô Islands, 90 m and 154 m); St. 475 (off Tsushima, 192 m); and 484 (off Yamaguchi Pref., 93 m).

*Distribution*: Kyushu (south to Yakushima), Shikoku and Honshu (north to off Bôso Peninsula).

*Remarks:* This species is characterized by 9 internal ribs on the shell.

### 79. *Polynemamussium intuscostatum* (YOKOYAMA)

1920 *Pecten intuscostatus* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, **39**, p. 156, pl. 13, figs. 9, 10.

1922 *Pecten tenuicostulatus* YOKOYAMA, *l. c.*, **44**, p. 184, pl. 17, fig. 15.

*Localities:* St. 4 (off Bôshô Peninsula, 287 m); Sts. 11 and 12 (off Chôshi, Chiba Pref., 373 m and 325 m); Sts. 211 and 352 (off Tanabe, Wakayama Pref., 190 m and 154 m); Sts. 259 and 279 (Suruga Bay, 188 m and 155 m); St. 295 (off Tanegashima, 154 m); St. 322 (Bungo Channel, 110 m); St. 327 (off Uwajima, Ehime Pref., 216 m); St. 345 (off Murotozaki, 165-199 m); St. 363 (off Mie Pref., 439 m); St. 417 (Satsuma Peninsula, 192 m); Sts. 438, 488 and 452 (off Gotô Islands, 219 m, 157 m and 154 m); Sts. 468 and 475 (off Tsushima, 112 and 192 m); St. 488 (off Yamaguchi Pref., 406 m); St. 646 (off Tsugaru Peninsula, 123 m).

*Distribution:* Kyushu, Shikoku and Honshu.

*Remarks:* This species has 16-20 internal ribs on the shell, but the following species has more than 30 when present and the shell attains larger size.

### 80. *Polynemamussium alaskense* (DALL)

1872 *Pecten alaskensis* DALL, Amer. Jour. Conch., **7**, p. 155, pl. 16, figs. 4.

1931 *Propeamussium simanense* KURODA, Venus, **3**, App. p. 81, figs. 92, 93.

*Localities:* St. 47 (off Iwate Pref., 355 m); St. 479 (off Tsushima, 148 m); St. 513 (Oki Islands, 284 m); St. 523 (off Tottori Pref., 181 m) and St. 602 (off Sado Island).

*Distribution:* Northern Honshu, Japan Sea, Hokkaido and Alaska.

### 81. *Bathyamussium jeffreysii* (SMITH)

(Pl. XI, fig. 20)

1885 *Amussium jeffreysii* SMITH, Challenger Rep. Lamellibr., p. 310, pl. 23, figs. 2, 2a-c.

*Localities:* St. 392 (Kii Channel) and St. 414 (off Yakushima, 514 m).

*Distribntion:* Indian Ocean, Philippines, Kyushu, Shikoku and Honshu.

### 82. *Flavamussium caducum* (SMITH)

(Pl. XI, fig. 26)

1885 *Amussium caducum* SMITH, Challenger Rep. Lamellibr., p. 309, pl. 23, figs. 1. 1a. c.

1932 *Propeamussium nakazawai* KURODA, Venus, **3**, App. p. 87, figs. 101, 102.

*Locality*: St. 412 (off Satsuma Peninsula, 219 m).

*Distribution*: Philippines, Kyushu, Shikoku and Honshu (north to Suruga Bay).

## Family Spondylidae

### 83. *Spondylus anacanthus* MAWE

1823 *Spondylus anacanthus* MAWE, Linn. Syst. Conch., pl. 2, figs. 3.

1847 *Spondylus nudus* SOWERBY, Thes. Conch., 1, p. 430, pl. 48, figs. 39, 40.

*Localities*: St. 218 (off Murotozaki, 132 m); St. 270 (Enshû-nada, 91 m); St. 327 (off Uwajima, Ehime Pref., 216 m).

*Distribution*: Ryukyu, Kyushu, Shikoku and Honshu (north to Suruga Bay).

## Family Limidae

### 84. *Limatula subauriculata* (MONTAGU)

(Pl. XI, fig. 31)

1808 *Pecten subauriculatus* MONTAGU, Test. Brit. Suppl., p. 63, pl. 29, figs. 2.

*Localities*: St. 33 (off Kinkazan, Miyagi Pref., 331 m); St. 255 (Sagami Bay, 263 m); St. 304 (off Toizaki, Miyazaki Pref., 241 m); St. 345 (off Murotozaki, 165–199 m) St. 646 (off Tsugaru Peninsula, 123 m) and 658 (off Shiriyazaki, Aomori Pref., 113 m).

*Distribution*: Kyushu to Honshu, Saghalien, the North Pacific; the North Atlantic and Arctic Sea.

### 85. *Limatula kurodai* OYAMA

1943 *Limatula kurodai* OYAMA, Conch. Asiatica, 1, p. 21, pl. 1, figs. 18a, b; pl. 14, fig. 1.

*Localities*: St. 4 (off Bôsô Peninsula, 287 m) and St. 294 (off Tanegashima, 102 m).

*Distribution*: Kyushu and Honshu.

### 86. *Limatula (Stabilima) japonica* A. ADAMS

(Pl. XIII, fig. 8)

1863 *Limatula japonica* A. ADAMS, Proc. Zool. Soc. London, p. 509.

*Localities*: Sts. 211 and 212 (off Tanabe, Wakayama Pref., 190 m and 181 m); St. 220 (Tosa Bay, 234 m); St. 240 (Sagami Bay, 192 m); Sts. 259 and 279 (Suruga Bay, 188 m and 155 m); St. 295 (off Tanegashima, 154 m); St. 321 (Bungo Channel, 457 m); Sts. 352 and 354 (off Wakayama, Pref., 154 m and 558 m); St. 384 (the entrance of Ise Bay, 21–38 m); Sts. 466, 468 and 469 (off Tsushima, 110 m, 112 m

and 91 m); St. 521 (off Oki Islands, 86 m); St. 549 (off Fukui Pref., 115 m); Sts. 646 and 647 (off Tsugaru Peninsula, 123 m and 86 m); and St. 658 (off Shiriyazaki, Aomori Pref., 113 m).

*Distribution*: Kyushu, Shikoku and Honshu.

#### 87. *Notolimea tosana* OYAMA

1943 *Limatula* (*Notolimea*) *tosana* OYAMA, Conch. Asiatica, 1, p. 11, pl. 1, figs. 1a, b.

*Locality*: St. 220 (Tosa Bay, 234 m).

*Distribution*: Tosa Bay, Shikoku.

#### 88. *Lima zushiensis* YOKOYAMA

1920 *Lima zushiensis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39 (6), p. 148, pl. 12, fig. 8.

*Localities*: St. 269 (off Izu Peninsula, 247 m); 376 (Enshû-nada, 64 m) and St. 455 (off Gotô Islands, 73 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to off Ibaraki Pref., and Toyama Bay).

*Remarks*: This species is characterized by the shell coloured in brownish.

#### 89. *Lima fujitai* OYAMA

1929 *Lima quantoensis* FUJITA, Venus 1, p. 60, pl. 3, fig. 1. (non YOKOYAMA).

1943 *Lima fujitai* OYAMA, Conch. Asiatica. 1, p. 61, pl. 12, fig. 7.

*Localities*: Sts. 11 and 12 (off Bôshô Peninsula, 375 m and 325 m); St. 333 (off Ashizurizaki, 179 m); St. 428 and 431 (off Amakusa, 119 m and 152 m); Sts. 439, 440, 441, 445 and 447 (off Gotô Islands, 155 m, 152 m, 353 m, 73 m and 90 m); Sts. 458, 459, 462, 468 and 481 (off Tsushima, 81 m, 115 m, 117 m, 112 m and 143 m); Sts. 503 and 512 (off Oki Islands, 146 m and 141 m) and St. 575 (off Noto Peninsula, 123 m).

*Distribution*: Kyushu, Shikoku and Honshu (north to Miyagi Pref. and off Noto Peninsula).

#### 90. *Lima tomlini* PRASHAD

1932 *Lima tomlini* PRASHAD, Siboga Exped., Lamellibr., p. 123, pl. 3, figs. 29-31.

*Localities*: St. 4 (off Bôshô Peninsula, 287 m) and St. 259 (Suruga Bay, 188 m).

*Distribution*: Arafura Sea, East Indies, Philippines and Japan (north to Bôshô Peninsula).

#### 91. *Lima quantoensis* YOKOYAMA

1920 *Lima quantoensis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 39 (6), p. 148, pl. 12, fig. 8.

*Locality*: St. 205 (Tōsa Bay, 224 m).

*Remarks*: This is a first record of this species in living. This species has 33-36 radial ribs on the elongate shell, while the preceding species has 35-46 radial ones on the circular shell.

## 92. *Acesta goliath* (SOWERBY)

1883 *Lima goliath* SOWERBY, Proc. Zool. Soc. London, p. 30, pl. 7, fig. 3.

*Localities*: St. 541 (off Yosa Peninsula, Kyoto Pref., 150 m); St. 575 (off Noto Peninsula, 123 m); St. 605 (off Sado Island, 139 m); St. 619 (off Yamagata Pref., 338 m); Sts. 630 and 637 (off Akita Pref., 150 m and 145 m); St. 640 (off Aomori Pref., 179 m); St. 646 (off Tsugaru Peninsula, 123 m) and St. 658 (off Shiriyazaki, Aomori Pref. 113 m).

*Distribution*: Japan Sea and Honshu (south to Sagami Bay).

## 93. *Acesta smithi* (SOWERBY)

1888 *Lima smithi* SOWERBY, Proc. Zool. Soc. London, p. 207, pl. 11, fig. 12.

*Localities*: Sts. 608, 609 and 610 (off Sado Island, 150 m, 669 m and 145 m); and Sts. 636 and 637 (off Akita Pref., 115 m and 145 m).

*Distribution*: Honshu (south to Suruga Bay and Wakasa Bay).

## 94. *Ctenoides lischkei* (LAMY)

1877 *Lima japonica* DUNKER, Mal. Bl., 24, p. 70 (non SOWERBY).

1885 *Lima dunkeri* SMITH, Challenger Rep. Lamellibr., p. 291, (non HAGENOW).

1930 *Lima lischkei* LAMY., Jour. de Conchyl., 74, p. 196.

*Localities*: St. 327 (off Uwajima, Ehime Pref., 216 m); St. 376 (Enshū-nada, 64 m) and St. 455 (off Gotō Islands, 73 m).

*Distribution*: Formosa, Kyushu, Shikoku and Honshu.

## 95. *Promantellum orientalis* (A. ADAMS et REEVE)

1850 *Lima orientalis* A. ADAMS et REEVE, Zool. Samarang, Moll., p. 75, pl. 21, fig. 7.

*Localities*: St. 4 (off Chōshi, Chiba Pref., 375 m); and St. 255 (Sagami Bay, 263 m).

*Distribution*: Philippines to Japan (north to southern Hokkaido).

## Superfamily Anomiacea

## Family Anomiidae

96. *Monia umbonata* (GOULD)

(Pl. XII, figs. 12, 19)

- 1861 *Placunanomia umbonata* GOULD, Proc. Boston Soc. N. H., 8, p. 39  
 1861 *Anomia radulina* A. ADAMS, Ann. Mag. N. H., (3) 8, p. 142.  
 1861 *Anomia pustulata* A. ADAMS, *l. c.*, p. 142.  
 1914 *Placunanomia radiata* SOWERBY, Ann. Mag. N. H., (8) 14, p. 38, pl. 2, fig. 15.  
 1922 *Anomia sematensis* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44, p. 177, pl. 14, figs. 30, 31.  
 1922 *Anomia lunulata* YOKOYAMA, *l. c.*, p. 177, pl. 14, figs. 22, 23.

*Localities*: St. 12 (off Chôshi, Chiba Pref., 325 m); St. 301 (off Toizaki, Miyazaki Pref., 181 m); St. 321 (Bungo Channel, 457 m); St. 349 (Kii Channel, 152 m); St. 362 (Sugura Bay, 132 m); Sts. 447 and 452 (off Gotô Islands, 90 m and 154 m); St. 475 (off Tsushima, 192 m); St. 521 (off Oki Islands, 96 m) and St. 605 (off Sado Island, 139 m).

*Distribution*: Kyushu, Shikoku and Honshu.

97. *Monia macrochisma* (DESHAYES)

(Pl. XII, fig. 20)

- 1839 *Anomia macrochisma* DESHAYES, Rev. Zool. Soc. Cuv., p. 359.  
 1925 *Placunanomia denticostulata* YOKOYAMA, Jour. Fac. Sci. Imp. Univ. Tokyo, (2) 1 (1), p. 16, pl. 2, fig. 3.  
 1925 *Placunanomia ingens* YOKOYAMA, *l. c.*, p. 16, pl. 4, fig. 1.

*Localities*: St. 59 (off Iwate Pref., 168 m) and St. 74 (off Shimokita Peninsula, 219 m).

*Distribution*: Northern Honshu, Hokkaido to the North Pacific.

## Superfamily Ostreacea

## Family Ostreidae

98. *Notostrea musashiana* (YOKOYAMA)

(Pl. XII, fig. 14)

- 1920 *Ostrea musashiana* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo., 39, p. 163, pl. 16, figs. 1-3.

*Localities*: St. 11 (off Chôshi, Chiba Pref., 375 m); Sts. 210, 211, 354 and 395 (off Wakayama Pref., 165 m, 190 m, 558 m and 46 m); Sts. 222 and 342 (off Tosa Bay, 210 m and 288-527 m); Sts. 240, 248, 249 and 251 (Sagami Bay, 191 m, 170 m, 229 m and 165 m); Sts. 259, 266, 274, 275, 276, 278, 279, 286 and 288 (Suruga Bay, 188 m, 128 m, 51 m, 62 m, 77 m, 79 m, 155 m, 123 m and 77 m); Sts. 293, 296 and 298 (off Tanegashima, 203 m, 219 m and 117 m); Sts. 300, 301 and 309 (off Toizaki, Miyazaki



Pref., 110 m, 181 m and 472 m); Sts. 321 and 327 (Bungo Channel, 457 m and 216 m); St. 330 (off Ashizuruzaki, 102 m); St. 345 (off Murotozaki, 165–199 m); St. 347 (Kumano-nada, 126 m); Sts. 362 and 365 (off Mie Pref., 132 m and 93 m); Sts. 371 and 377 (Enshu-nada, 84 m and 82 m); St. 384 (the entrance of Ise Bay, 21–38 m); Sts. 416 and 417 (off Satsuma Peninsula, 378 m and 192 m); St. 425 (off Koshiki Islands, 300 m); Sts. 429 and 431 (off Amakusa, 223 m and 152 m); Sts. 432, 437, 438, 439, 440, 442, 445, 447, 448 and 452 (off Gotô Islands, 148 m, 307 m, 219 m, 155 m, 152 m, 340 m, 73 m, 90 m, 157 m and 154 m); Sts. 468 and 481 (off Tsushima, 112 and 143 m); Sts. 483 and 488 (off Yamaguchi Pref., 130 m and 406 m); Sts. 491, 492 and 520 (off Shimane Pref., 112 m, 132 m and 75 m); Sts. 503 and 512 (off Oki Islands, 146 m and 141 m); Sts. 522 and 523 (off Tottori Pref., 192 m and 181 m); St. 546 (Wakasa Bay, 101 m); St. 554 (off Ishikawa Pref., 95 m); Sts. 572 and 575 (off Noto Peninsula, 132 m and 123 m); St. 591 (off Niigata Pref., 311 m); St. 605 (off Sado Islands, 139 m); Sts. 619 and 620 (off Yamagata Pref., 338 m and 139 m); Sts. 627 and 637 (off Akita Pref., 148 m and 145 m) and St. 646 (off Tsugaru Peninsula, 123 m).

#### Subclass ANOMALODESMA

#### Order ANOMALOBANCHIA

#### Superfamily Pandoracea

#### Family Lyonsiidae

#### 99. *Allogramma (Bentholyonsia) teramachii* HABE

(Pl. XIII, fig. 25)

1952 *Allogramma (Bentholyonsia) teramachii* HABE, Gen. Jap. Shells, 3, p. 257, figs. 691, 694–5.

1952 *Allogramma (Bentholyonsia) teramachii* HABE, Illust. Cat. Jap. Shells, 21, p. 154, pl. 22, figs. 12–15.

*Locality*: St. 439 (off Gotô Islands, Kyushu, 155 m).

*Distribution*: Tosa Bay, Shikoku and off Gotô Islands, Kyushu.

#### Family Pandoridae

#### 100. *Pandora (Kennerlia) wardiana* A. ADAMS

(Pl. XIII, fig. 22)

1859 *Pandora wardiana* A. ADAMS, Proc. Zool. Soc. London, p. 487.

1940 *Pandora (Kennerleyia) japonensis* NOMURA et HATAI (in part), Saitô Hô-on Kai Mus. Res. Bull. 19, p. 86, pl. 4, figs. 13a–d only.

*Localities*: St. 493 (off Shimane Pref., 124 m.) and St. 503 (off Oki Islands in Japan Sea, 146 m).

*Distribution*: Japan Sea and Volcano Bay, Hokkaido.

101. *Pandora (Kennerlia) pseudobilirata* NOMURA et HATAI

(Pl. XIII, fig. 23)

1874 *Pandora delicatula* SOWERBY, Conch. Icon., sp. 17 (non CARPENTER 1864).1940 *Pandora (Kennerleyia) pseudolirata* NOMURA et HATAI, Saitô Hô-on Kai Mus. Res. Bull. 19, p. 87, pl. 4, figs. 14a, b.1940 *Pandora (Kennerleyia) japonensis* NOMURA et HATAI, l. c., pl. 4, figs. 14a, b.

*Localities*: St. 220 (Tosa Bay, Shikoku, 234 m); St. 259 (Suruga Bay, 188 m); St. 286 (Seno-umi, Suruga Bay, 123 m); St. 309 (Hyûga-Nada, 472 m); St. 322 (Bungo Channel, 110 m); St. 452 (off Quelpart Island, 154 m); St. 468 (off Tsushima, 112 m); St. 488 (off Yamaguchi Pref., 406 m); St. 503 (off Oki Islands, 146 m); St. 599 (off Sado Islands, 181 m); St. 946 (off Tsugaru Peninsula, 123 m); St. 658 (off Shimokita Peninsula, 113 m).

*Distribution*: Kyushu, Shikoku and Honshu.

102. *Pandora (Kennerlia) otukai* HABE

(Pl. XIII, fig. 18)

1952 *Pandora (Kennerlia) otukai* HABE, Illust. Cat. Jap. Shells, 18, p. 124, pl. 18, figs. 11, 12.

*Locality*: St. 4 (off Bôshô Peninsula, 287 m).

*Distribution*: Kyushu, Shikoku and the Pacific coast of Honshu.

*Remarks*: This species was erroneously referred to *P. bicarinata* from California or *P. radiata* from Colombia by various Japanese authors.

103. *Pandora (Kennerlia) nipponica* HABE

(Pl. XIII, fig. 14)

1952 *Pandora (Kennerlia) nipponica* HABE, Illust. Cat. Shells, 18, p. 125, pl. 18, fig. 6.

*Localities*: St. 392 (Kii Channel, 61 m) and St. 432 (off Gotô Islands, 148 m).

*Distribution*: Shikoku and Kyushu.

104. *Heteroclidus pulchellus* (YOKOYAMA)

(Pl. XIII, fig. 26)

1926 *Pandora pulchella* YOKOYAMA, Jour. Fac. Sci. Imp. Univ. Tokyo, (2) 1 (9), p. 387, pl. 45, fig. 4.

*Localities*: St. 523 (off Tottori Pref., 181 m) and St. 572 (off Noto Peninsula, 132 m).

*Distribution*: Japan Sea.

## Family Myochamidae

105. *Myadora fluctuosa* GOULD

(Pl. XIII, fig. 5)

1861 *Myadora fluctuosa* GOULD, Proc. Boston Soc. N. H., 8, p. 23.1880 *Myadora proxima* SMITH, Proc. Zool. Soc. London, p. 586, pl. 53, figs. 8, 8a, b.1882 *Myadora triangularis* DUNKER, Index Moll. Mar. Jap., p. 181, pl. 7, figs. 11, 12.

*Localities*: St. 459 (off Tsushima, 115 m); St. 470 (off Fukuoka Pref., 73 m); Sts. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m); Sts. 494 and 499 (off Shimane Pref., 110 m and 207 m).

*Distribution*: Kyushu, Shikoku and Honshu.

106. *Myadora japonica* HABE

(Pl. XIII, fig. 10)

1950 *Myadora japonica* HABE, Illust. Cat. Jap. Shells, 4, p. 27, pl. 4, figs. 4-6.

*Localities*: Sts. 11 and 12 (off Chôshi, Chiba Pref., 375 m and 325 m); St. 78 (off Shimokita Peninsula, 143 m); Sts. 240 and 251 (Sagami Bay, 192 m and 165 m); Sts. 321 and 324 (Bungo Channel, 457 m and 106 m); St. 365 (off Shima Peninsula, 93 m); St. 371 (Enshû-nada, 84 m); St. 439 (off Gotô Islands, 165 m); Sts. 462, 469, 475, 477 and 481 (off Tsushima, 117 m, 91 m, 192 m, 99 m and 143 m); St. 483 (off Yamaguchi Pref., 130 m); Sts. 492 and 498 (off Shimane Pref., 132 m and 139 m); St. 504 (off Oki Islands, 106 m); St. 523 (off Tottori Pref., 181 m); St. 451 (off Yosa Peninsula, 150 m).

*Distribution*: Kyushu, Shikoku and Honshu.

107. *Myadora yokoyamai* HABE

(Pl. XIII, fig. 15)

1950 *Myadora yokoyamai* HABE, Illust. Cat. Jap. Shells, 4, p. 28, pl. 4, figs. 7-9.

*Locality*: St. 432 (off Gotô Islands, Kyushû, 142 m).

*Remarks*: This species has never been collected in living state until today. Therefore though many detached valves of this species were collected from this station it is very doubtful whether they are of Recent shells or of fossil ones.

108. *Myadora soyoae* HABE

(Pl. XIII, fig. 16)

1950 *Myadora soyoae* HABE, Illust. Cat. Jap. Shells, 4, p. 25, pl. 4, fig. 18.

*Localities*: St. 325 (Bungo Channel, 210 m) and St. 462 (off Tsushima, 117 m).

*Distribution*: This species was collected from only two stations cited above until today.

109. *Myadora reeveana* SMITH

(Pl. XIII, fig. 28)

1880 *Myadora reeveana* SMITH, Proc. Zool. Soc. London, p. 586, pl. 53, figs. 10, 10a

*Locality*: St. 4 (off Bôso Peninsula, 287 m).

*Distribution*: Kyushu, Shikoku and Honshu.

110. *Myadora teramachii* HABE

(Pl. XIII, fig. 11)

1950 *Myadora teramachii* HABE, Illust. Cat. Jap. Shells, 4, p. 28, pl. 4, figs. 14-16.

*Locality*: St. 392 (Kii Channel, 62 m).

*Distribution*: Tosa Bay, Shikoku and Kii Channel between Shikoku and Honshu.

Family Pholadomyidae

111. *Pholadomya pacifica* DALL

(Pl. XIII, fig. 7)

1907 *Pholadomya pacifica* DALL, Smiths. Misc. Coll., 50 (2), p. 172.

1925 *Pholadomya pacifica* DALL, Proc. U. S. Nat. Mus., 66 (17), p. 24, pl. 29, figs. 8, 9.

1940 *Pholadomya japonica* NOMURA et NIINO, Rec. Oceanogr. Works Japan, 12 (1), p. 61.

*Localities*: St. 384 (the entrance of Ise Bay, 38 m) and St. 503 (off Oki Islands, 146 m).

*Distribution*: Shikoku and Honshu.

Family Thraciidae

112. *Parvithracia sematana* (YOKOYAMA)

1922 *Thracia sematana* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 173, pl. 14, figs. 17, 18.

*Localities*: St. 259 (Suruga Bay, 188 m) and St. 371 (Enshû-nada, 84 m).

*Distribution*: The Pacific coast of Honshu.

113. *Thraciopsis transmontana* (YOKOYAMA)

(Pl. XIII, fig. 13)

1922 *Thracia transmontana* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 172, pl. 14, figs. 13-14.

*Localities*: St. 4 (off Bôshô Peninsula, 287 m); St. 481 (off Tsushima, 143 m) and St. 503 (off Oki Islands, 146 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### Superfamily Clavagellacea

#### Family Clavagellidae

#### 114. *Clavagella* (*Stirpulina*) *ramosa* DUNKER

(Pl. XIII, fig. 21)

1882 *Clavagella ramosa* DUNKER, Index Moll. Mar. Jap., p. 172, pl. 16, figs. 1, 2.

*Locality*: St. 455 (off Quelpart Island between Kyushu and Korea, 90 m).

*Distribution*: Kyushu, Shikoku and Honshu.

### Order SEPTIBRANCHIA

#### Superfamily Poromyacea

#### Family Verticordidae

#### 115. *Verticordia* (*Spinosipella*) *japonica* A. ADAMS

(Pl. XIII, fig. 1)

1862 *Verticordia japonica* A. ADAMS, Ann. Mag. N. H., (3) 9, p. 224.

1952 *Verticordia* (*Spinosipella*) *japonica* KURODA, Jap. Jour. Conch. (Venus), 17 (1), p. 10, pl. 1, figs. 10, 11.

*Locality*: St. 276 (Senoumi in Suruga Bay, 77 m).

*Distribution*: Kyushu, Shikoku and Honohu; East Indies.

*Remarks*: *Verticordia deshayesiana* FISCHER (1862) from the Chinese seas may be a local form of this species.

#### 116. *Verticordia* (*Haliris*) *multicostata* A. ADAMS

(Pl. XIII, fig. 4)

1862 *Verticordia multicostata* A. ADAMS, Ann. Mag. N. H., (3) 9, p. 224.

1952 *Verticordia* (*Haliris*) *multicostata* KURODA, Jap. Jour. Malac. (Venus), 17 (1), p. 9, pl. 1, figs. 4, 5.

*Locality*: St. 259 (Suruga Bay, 188 m).

*Distribution*: Kyushu, Shikoku and Honshu.

117. *Euciroa cistagemma* KURODA

(Pl. XIII, fig. 9)

1951 *Euciroa cistagemma* KURODA, Jap. Jour. Malac. (Venus), 17(1), p. 14, pl. 1, figs. 16-18.*Locality*: St. 437 (off Gotô Islands, Kyushu, 307 m).

## Family Poromyidae

118. *Poromya flexuosa* YOKOYAMA

(Pl. XIII, fig. 27)

1922 *Poromya flexuosa* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 173, pl. 14, figs. 15, 16.

*Localities*: St. 4 (off Bôshô Peninsula, 287 m); St. 12 (off Chôshi, Chiba Pref., 325 m); St. 221 (Tosa Bay, 209 m); St. 259 (Suruga Bay, 188 m); St. 352 (Kii Channel, 154 m); St. 371 (Enshû-nada, 84 m); St. 384 (the entrance of Ise Bay, 21-38 m); Sts. 432, 439, 440, 444, 451 and 452 (off Gotô Islands, 148 m, 155 m, 152 m, 194 m, 187 m and 154 m); St. 470 (off Fukuoka Pref., 73 m); St. 475 (off Tsushima, 192 m); Sts. 471, 484 and 486 (off Yamaguchi Pref., 90 m, 93 m and 139 m); Sts. 493, 494, 495 and 520 (off Shimane Pref., 124 m, 110 m, 146 m and 75 m); Sts. 503 and 504 (off Oki Islands, 146 m and 106 m); St. 523 (off Tottori Pref., 181 m); Sts. 546 and 549 (Wakasa Bay, 101 m and 115 m); St. 580 (Toyama Bay, 135 m); St. 646 (off Tsugaru Peninsula, 123 m).

119. *Poromya castanea* HABE

(Pl. XIII, fig. 24)

1952 *Poromya castanea* HABE, Illust. Cat. Jap. Shells, 21, p. 156, pl. 22, fig. 10.*Locality*: St. 499 (off Oki Islands in Japan Sea, 207 m).*Distribution*: Japan Sea.120. *Dermatomya tenuiconcha soyoae* HABE

(Pl. XIII, fig. 6)

1952 *Dermatomya tenuiconcha soyoae* HABE, Illust. Cat. Jap. Shells, 21, p. 158, pl. 22, figs. 7, 8.

*Locality*: St. 33 (off Kinkazan, Miyagi Pref., 331 m); St. 62 (off Kuji, Iwate Pref., 631 m) and St. 71 (off Hachinoe, Aomori Pref., 444 m).

*Distribution*: The Pacific coast of northern Honshu.

121. *Cetoconcha japonica* HABE

(Pl. XIII, fig. 12)

1952 *Cetoconcha japonica* HABE, Illust. Cat. Jap. Shells, 21, p. 159, pl. 22, figs. 2-4.*Locality*: St. 32 (off Kinkazan, Miyagi Pref., 611 m).*Distribution*: Shikoku and Honshu.

## Family Cuspidariidae

122. *Cuspidaria suganumai* NOMURA1940 *Cuspidaria suganumai* NOMURA, Rec. Oceanogr. Works Japan, 12 (1), p. 101, pl. 2, figs. 13a, b.*Localities*: St. 255 (Sagami Bay, 263 m); Sts. 259 and 286 (Suruga Bay, 188 m and 123 m); Sts. 304 and 319 (off Miyazaki Pref., 241 m and 210 m); St. 392 (Kii Channel, 61 m); St. 433 (off Gotô Islands, 168 m).*Distribution*: Kyushu, Shikoku and Honshu.123. *Cuspidaria japonica* KURODA1948 *Cuspidaria japonica* KURODA, Jap. Jour. Malac. (Venus), 15 (1), p. 14, pl. 1, fig. 2.*Localities*: St. 392 (Kii Channel, 61 m) and St. 462 (off Gotô Islands, 154 m).*Distribution*: Shikoku and Kyushu.124. *Cuspidaria nobilis* (A. ADAMS)

(Pl. XIII, fig. 17)

1864 *Neaera nobilis* A. ADAMS, Ann. Mag. N. H., (3) 15, p. 207.1929 *Cuspidaria chinensis* FUJITA, Venus, 1 (2), p. 62, pl. 3, fig. 3. (non GRIFFITH et PIDGEON).*Localities*: St. 286 (Suruga Bay, 123 m) and St. 439 (off Gotô Islands, 155 m).*Distribution*: Kyushu, Shikoku and Honshu.125. *Cardiomya gouldiana septentrionalis* (KURODA)1948 *Cuspidaria* (*Cardiomya*) *gouldiana septentrionalis* KURODA, Venus, 15, pp. 3, 18, pl. 2, fig. 12.*Localities*: St. 4 (off Bôso Peninsula, 287 m); St. 12 (off Chôshi, Chiba Pref., 325 m); St. 371 (Enshû-nada, 84 m); Sts. 484 and 488 (off Yamaguchi Pref., 93 m and 406 m); Sts. 493 and 494 (off Shimane Pref., 124 m and 110 m).*Distribution*: Kyushu, Shikoku and Honshu (*C. gouldiana septentrionalis*) and Philippines (*C. gouldiana gouldiana*).

126. *Cardiomya tosaensis* (KURODA)

1948 *Cuspidaria* (*Cardiomya*) *tosaensis* KURODA, Jap. Jour. Malac. (Venus), 15, p. 18, pl. 2, fig. 13.

*Localities*: St. 324 (Bungo Channel, 106 m) and St. 432 (off Gotô Islands, 148 m).

*Distribution*: Kyushu, Shikoku and Honshu.

127 *Cardiomya reticulata* (KURODA)

1948 *Cuspidaria* (*Cardiomya*) *reticulata* KURODA, Jap. Jour. Malac., 15, p. 19, pl. 2, fig. 17.

*Locality*: St. 452 (off Gotô Islands, Kyushu, 154 m).

*Distribution*: Kyushu and Shikoku.

128. *Myonera fluctuosa* KURODA

1948 *Myonera fluctuosa* KURODA, Jap. Jour. Malac. (Venus), 15, p. 25, pl. 2, fig. 20.

*Localities*: St. 12 (off Chôshi, Chiba Pref., 325 m); St. 322 (Bungo Channel, 110 m); St. 371 (Enshû-nada, 84 m) and St. 452 (off Gotô Islands, 154 m).

*Distribution*: Kyushu, Shikoku and Honshu.

129. *Plectodon ligula* (YOKOYAMA)

1922 *Cuspidaria ligula* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 169, pl. 14, figs. 3, 4.

*Localities*: St. 4 (off Bôshô Peninsula, 287 m) and St. 81 (off Shimokita Peninsula, 172 m).

*Distribution*: Kyushu, Shikoku and Honshu.

130. *Plectodon* (*Pseudoneaera*) *iridella* KURODA

(Pl. XIII, figs. 19, 20)

1948 *Cuspidaria* (*Pseudoneaera*) *iridella* KURODA, Jap. Jour. Malac., 15, p. 25, pl. 2, fig. 9.

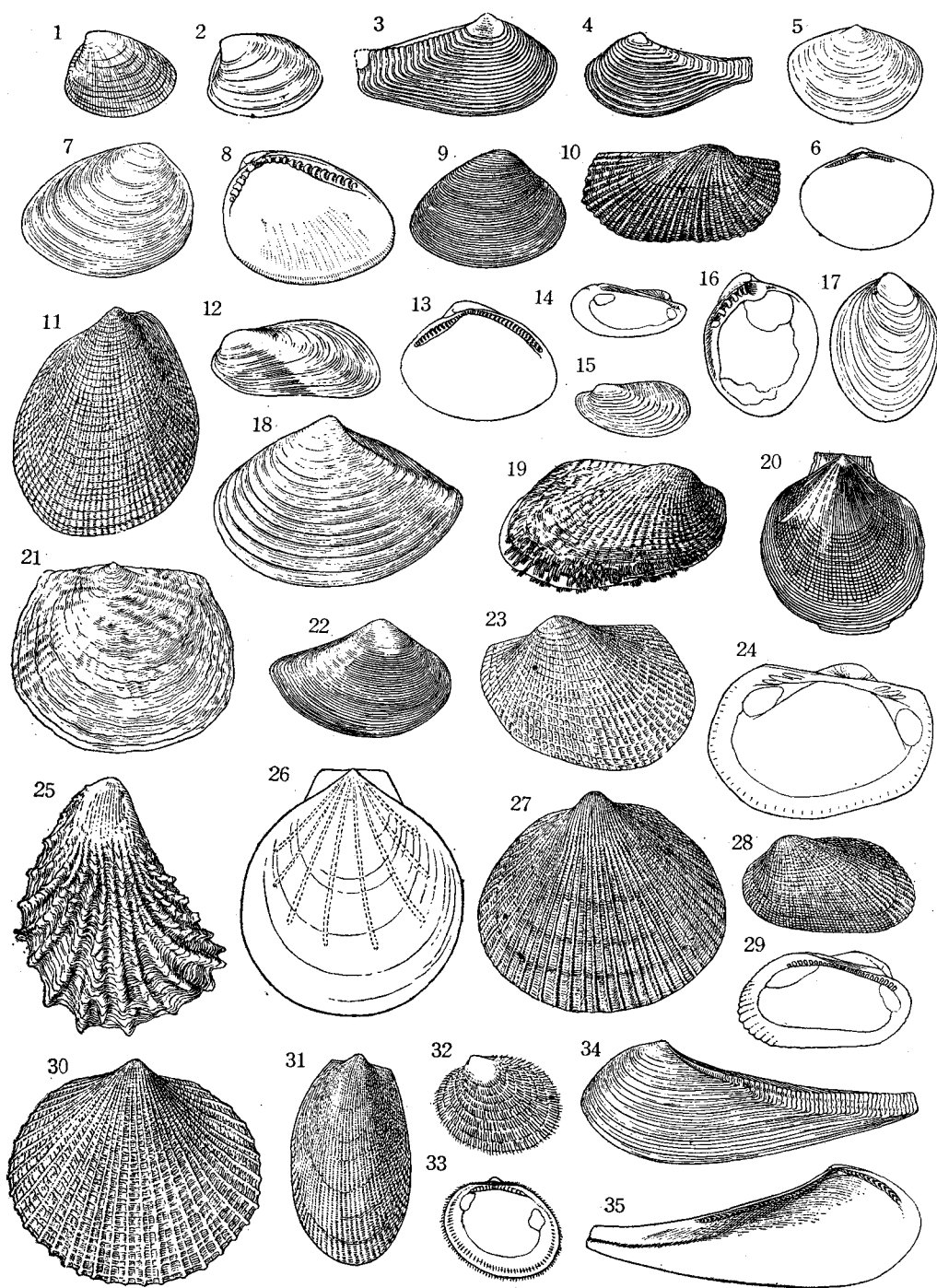
*Localities*: St. 259 (Suruga Bay, 188 m); St. 300 (off Toizaki, Miyazaki Pref., 110 m); St. 452 (off Gotô Islands, 154 m) and St. 468 (off Tsushima 112 m).

*Distribution*: Kyushu, Shikoku and Honshu.



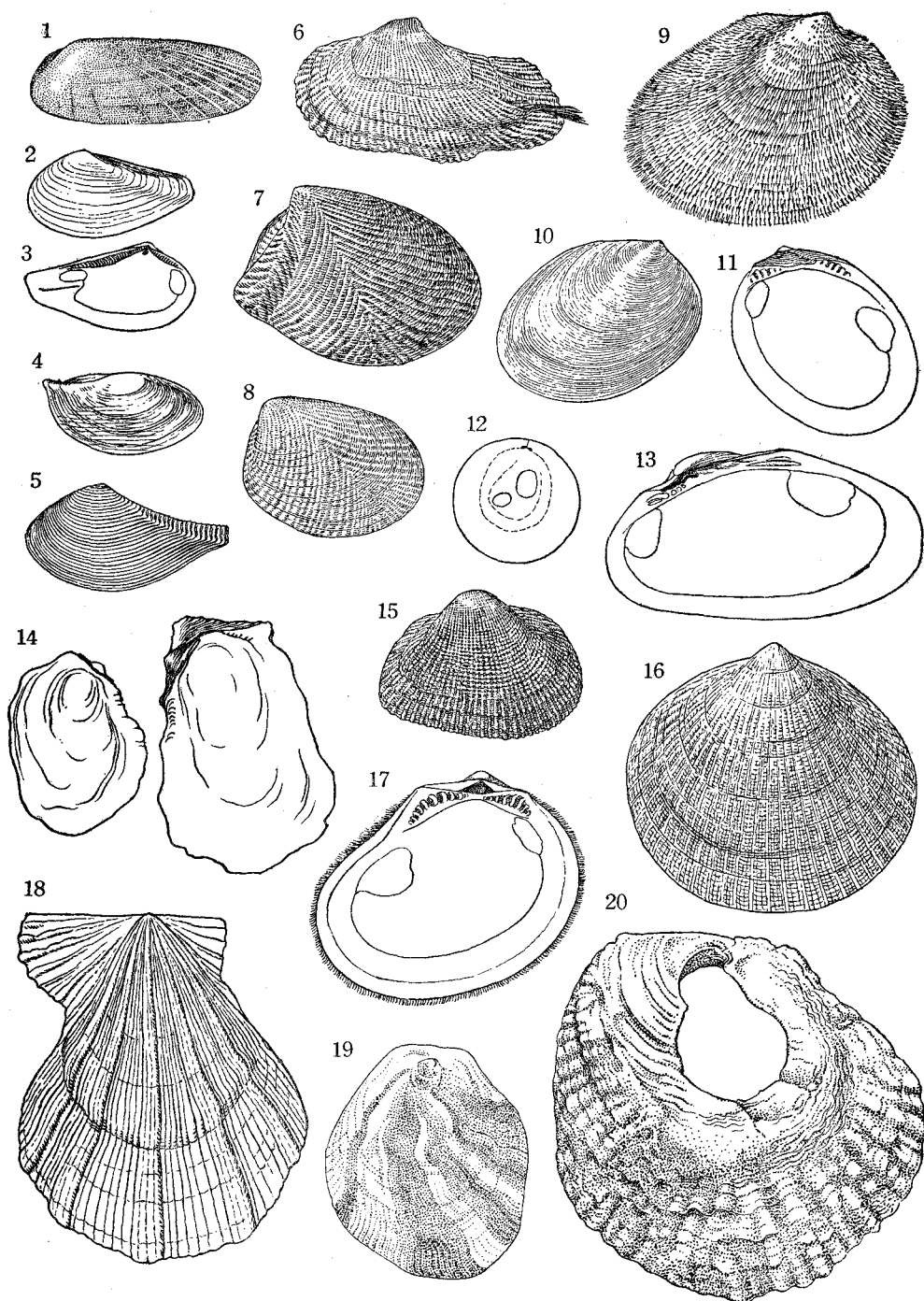
## EXPLANATION OF PLATE XI

- Fig. 1. *Nucula (Lamellinucula) tokyoensis* YOKOYAMA, 6.5×5.8 mm.  
2. *Ennucula cyrenoides* (KURODA), 12.0×9.2 mm.  
3. *Nuculana (Thestylea) aikawai* sp. nov., 9.1×5.0 mm.  
4. *Nuculana (Thestylea) yokoyamai arai* subsp. nov., 7.5×3.9 mm.  
5, 6. *Sarepta speciosa* A. ADAMS, 13.0×10.0 mm.  
7, 8. *Nucula paulula* A. ADAMS, 3.5×2.7 mm.  
9, 13. *Tindaria soyoae* HABE, 4.8×3.8 mm.  
10. *Hawaiarca uwaensis* (YOKOYAMA), 11.2×5.8 mm.  
11. *Aspalima (Nipponolimopsis) decussata* (A. ADAMS), 5.4×6.5 mm.  
12. *Modiolus (Fulgida) flavidus* (DUNKER), 33.9×15.4 mm.  
14, 15. *Samacar pacifica* (NOMURA et ZINBO), 22.2×12.4 mm.  
16, 17. *Nucinella (Huxleyia) sulcata* (A. ADAMS), 2.3×2.8 mm.  
18. *Saccella soyoae* sp. nov., 9.0×6.0 mm.  
19. *Bentharca xenophoricola* (KURODA), 16.7×10.4 mm.  
20. *Bathyamussium jeffreysi* (SMITH), 19.7×20.6 mm.  
21. *Dimya lima* BARTSCH, 7.7×6.7 mm.  
22. *Neilonella coix* HABE, 8.2×5.4 mm.  
23, 24. *Bathyarca kyurokusimana* NOMURA et HATAI, 4.4×3.4 mm.  
25. *Plicatula muricata* SOWERBY, 20.5×17.3 mm.  
26. *Flavamussium caducum* (SMITH), 22.9×25.0 mm.  
27. *Tucetilla pilsbryi* (YOKOYAMA), 17.2×15.4 mm.  
28, 29. *Striarca (Spinearca) soyoae* sp. nov., 8.0×5.3 mm.  
30. *Oblimopa japonica* (A. ADAMS), 14.2×14.1 mm.  
31. *Limatula subauriculata* (MONTAGU), 6.2×10.9 mm.  
32, 33. *Pectunculina oblonga* (A. ADAMS), 10.4×9.7 mm.  
34, 35. *Nuculana (Thestylea) scalata* PRASHAD, 11.3×4.7 mm.



## EXPLANATION OF PLATE XII

- Fig. 1. *Solemya (Acharax) japonica* DUNKER,  $8.7 \times 3.0 \times 1.8$  mm.  
2, 3. *Nuculana pernula* (MÜLLER),  $13.6 \times 7.3 \times 4.5$  mm.  
4. *Cnesterium johanni* (DALL),  $29.4 \times 15.0 \times 5.6$  mm.  
5. *Nuculana (Thestylea) yokoyamai* (KURODA),  $9.2 \times 5.0 \times 3.0$  mm.  
6. *Arca miyatensis* OYAMA,  $38.4 \times 21.9 \times 19.4$  mm.  
7. *Acila divaricata* (HINDS),  $26.0 \times 20.0 \times 15.0$  mm.  
8. *Acila (Truncacila) insignis* (GOULD),  $13.5 \times 10.0 \times 6.7$  mm.  
9, 17. *Limopsis tajimae* SOWERBY,  $25.9 \times 21.9 \times 11.5$  mm.  
10, 11. *Limopsis crassula* HABE,  $12.6 \times 12.0 \times 3.2$  mm (right valve).  
12. *Monia umbonata* (GOULD),  $23.9 \times 23.5 \times 2.5$  mm.  
13. *Pseudogrammatodon dalli* (SMITH),  $41.7 \times 26.3 \times 17.6$  mm.  
14. *Notostrea musashiana* (YOKOYAMA),  $23.0 \times 33.0 \times 16.0$  mm.  
15. *Striarca (Spinearca) interplicata* (GRABAU et KING),  $14.3 \times 10.6 \times 5.2$  mm.  
16. *Glycymeris yessoensis* (SOWERBY),  $44.3 \times 42.6 \times 21.6$  mm.  
18. *Chlamys (Swiftopecten) swifti* (BERNARDI),  $56.3 \times 67.2 \times 24.2$  mm.  
19. *Monia umbonata* (GOULD),  $21.1 \times 29.5 \times 2.5$  mm.  
20. *Monia macrochisma* (DESHAYES)  $50.5 \times 50.7 \times 15.0$  mm.



### EXPLANATION OF PLATE XIII

- Fig. 1. *Verticordia (Spinosipella) japonica* A. ADAMS, 12.0×13.7 mm.
2. *Crenella yokoyamai* NOMURA, 2.4×2.9 mm.
  3. *Limopsis (Empleconia) cumingi* A. ADAMS, 19.0×15.5 mm.
  4. *Verticordia (Haliris) multicostata* A. ADAMS, 5.7×5.6 mm.
  5. *Myadora fluctuosa* GOULD, 10.1×8.6 mm.
  6. *Dermatomya tenuiconcha soyoae* HABE, 16.1×12.8 mm.
  7. *Pholadomya pacifica* DALL, 44.0×30.0 mm.
  8. *Limatula (Stabilima) japonica* A. ADAMS, 17.4×12.6 mm.
  9. *Euciroa cistagemma* KURODA, 17.9×17.6 mm.
  10. *Myadora japonica* HABE, 16.1×12.6 mm.
  11. *Myadora teramachii* HABE, 12.8×9.7 mm.
  12. *Cetoconcha japonica* HABE, 16.2×13.0 mm.
  13. *Thraciopsis transmontana* (YOKOYAMA), 6.9×3.5 mm.
  14. *Pandora (Kennerlia) nipponica* HABE, 12.7×9.3 mm.
  15. *Myadora yokoyamai* HABE, 10.7×10.0 mm.
  16. *Myadora soyoae* HABE, 16.0×10.5 mm.
  17. *Cuspidaria nobilis* A. ADAMS, 39.9×22.2 mm.
  18. *Pandora (Kennerlia) otukai* HABE, 19.9×12.8 mm.
  - 19, 20. *Plectodon (Pseudoneaera) iridella* KURODA, 6.8×5.0 mm.
  21. *Clavagella (Stirpulina) ramosa* DUNKER, length of tube 75.0 mm.
  22. *Pandora (Kennerlia) wardiana* A. ADAMS, 51.6×32.5 mm.
  23. *Pandora (Kennerlia) pseudobilirata* (NOMURA et HATAI), 19.8×12.0 mm.
  24. *Poromya castanea* HABE, 15.0×12.7 mm.
  25. *Allogramma (Bentholyonsia) teramachii* HABE, 22.5×15.8 mm.
  26. *Heteroclidus pulchellus* (YOKOYAMA), 33.8×22.0 mm.
  27. *Poromya flexuosa* YOKOYAMA, 15.6×13.7 mm.
  28. *Myadora reeveana* SMITH, 5.8×4.3 mm.

